PERCEIVED STAGES OF CONCERN ABOUT THE ADOPTION OF AN INNOVATION IN A LARGE URBAN SCHOOL SYSTEM

By

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Abstract of Dissertation
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PERCEIVED STAGES OF CONCERN ABOUT THE ADOPTION OF AN INNOVATION IN A LARGE URBAN SCHOOL SYSTEM

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Since change is inevitable and innovative efforts often occur in educational organizations, it is important for educational leaders to be aware of the dynamics of change so they can employ the appropriate strategies and interventions to maintain personal and organizational equilibrium. Given that large school systems are frequently required to implement innovations and that relatively few studies have been done to assess the concerns of organizational members regarding the adoption of innovations, the study was undertaken. The focus of the study was on the stages of concern of members of implementation teams about the adoption of an elementary computer curriculum in a large urban school system. Additionally, data were gathered to determine if certain personal variables of members of implementation teams and school-related variables were related to whether the concerns of implementation teams were at the lower or higher stages based on the Concerns-Based Adoption Model (CBAM). According to the model, the lower stage concerns relate to how individuals are personally impacted by innovations, and the higher stages relate to how innovations impact students. An analysis was made of the conditions, perceived by members of implementation teams, that expedited or inhibited the adoption of the elementary computer curriculum.

A component of the CBAM, the Stages of Concern Questionnaire, was administered to 107 members of implementation teams in 9 pilot schools that implemented the curriculum in 1983-84 and 9 nonpilot schools that implemented it in 1984-85. A questionnaire and an interview guide, developed by the researcher, were used to gather data regarding selected personal variables and conditions perceived to expedite or inhibit the adoption process. Descriptive statistics were used to analyze the data which were presented in narrative and tabular form.

Based on the analysis of data, it was found that (a) members of implementation teams in nonpilot schools were at higher stages of concern than pilot school team members, (b) no personal or school-related variables seemed to have any bearing on the concerns, and (c) a lack of adequate training, lack of computers, and lack of software were conditions cited by implementers as causing the most concerns.

CHAPTER ONE

INTRODUCTION

While educators are constantly admonished to change and people are seldom satisfied with the status quo, for most persons, the change process is a very complex phenomenon. According to Bennis (1976),

> change is the metaphysics of our age. There's no need to go into the various shock statistics people cite when they talk about the rate of change in our society, because it is the bread and butter of commencement speeches, of Sunday magazine sections, and all sorts of newspapers. (p. 84)

Morgan (1972) contended that nothing is ever completed and managers must be able to tolerate ambiguity and realize that all things change. Morgan also stated that as changes take place, people believe that a better situation will occur as a by-product; however, this is not always the case. Unless the change process is controlled, improvement is not necessarily a product of change (p. 4).

A concern about change and innovation was expressed by Drucker (1970) when he stated "we will, therefore, increasingly have to learn to make existing organizations capable of rapid and continuing innovation" (p. 36). He also emphasized that most corporations worry about resistance to change. He stated that "what existing corporations will have to learn is to reach out for change as an opportunity and to resist continuity" (p. 36).

While it is important to discuss change and to review literature related to change, the focus of the study was on a subject closely associated with change: innovation. Although change and innovation are used interchangeably, it is important to acknowledge that they are two separate and distinct constructs; however, they have many of the same characteristics. Change takes place constantly in the environment as evidenced by the growth of living things and was defined by Havelock (1973) as "an alteration, or disturbance, of the status quo" (p. 4). Innovation is defined as any change which represents something new to those being changed. It is a generic name given to an issue, object, problem, or challenge which is the focus of a concern (Hall, George, & Rutherford, 1979, p. 6).

One of the problems that occurs as a result of innovative efforts is intergroup conflict. Hersey and Blanchard (1982) stated that the organization is "a composite of its various working units or groups" (p. 285). An important element, they said, is that these groups, both formal and informal, perceive their goals as being the same as the goals of the organization. They also stated that members of organizations should see their own goals being satisfied as a direct result of working for the goals of the organization. When innovations occur, sometimes parts of the organization come into conflict and can affect the "total productivity of the organization" (p. 285).

Argyris (1973) pointed out that resistance to change and innovation within organizations exists primarily because most organizations are "low in openness, trust, and risk taking and high in conformity, mistrust, and crisis management" (p. 70). He stated that under such circumstances resistance to change and innovation is simply a protective mechanism.

Argyris contended that the underlying change process, which meets the definition of innovation herein, is greatly influenced by the values held by executives. He believed that through becoming well aware of the change process and realizing that there are stages or phases through which groups and individuals must pass in order to achieve the desired outcome, change could occur with minimum dysfunction (p. 71).

Fuller (1970) described the change process that beginning teachers go through and identified certain concerns that teachers experience during each phase or stage. She proposed three phases or stages of concern of new teachers: pre-teaching phase, an early teaching phase, and a late teaching phase. In the pre-teaching phase, teachers had few specific concerns related to teaching. Most of their concerns related to concerns about self. The early teaching phase was characterized by concern about the task of teaching and managing instruction. Teachers were concerned about their adequacy and their standing within the school. In the late teaching phase, teachers demonstrated concern for their students. They were very interested in student learning and furthering their own professional development. Fuller characterized these late teaching phase concerns as impact concerns.

Based on the concepts and research of Fuller (1969) that associated the change process with concerns, Hall et al. (1979) developed the Concerns-Based Adoption Model (CBAM) which can be used to analyze and follow the complex process of change as it occurs through the adoption of innovations by individuals and groups within formal organizations. The model further assists managers in developing a prescription for needed interventions to facilitate the change efforts (p. 4).

According to Hall et al. (1979), the CBAM consists of several components. First, the Stages of Concern (SoC) are identified as awareness, informational, personal, management, consequence, collaboration, and refocusing (p. 7). Second, the Stages of Concern Questionnaire (SoCQ) is used to provide a quick scoring measure for the stages of concern of individuals or groups (p. 9). Finally, the Levels of Use (LoU) of the innovations focuses on knowledge, skill, and behavioral aspects of an individual's involvement with change. There is an instrument designed to measure levels of use (p. 4).

The SoC are specifically related to the feelings one has about an innovation, while the LoU relate to an individual's performance while using innovations. According to Hall et al. (1979), "when used in combination, SoC and LoU provide a powerful description of the dynamics of an individual involved in change" (p 4). Because the CBAM is uniquely suited to analyzing the change process and, specifically, the SoCQ can be used to determine the stages of concerns of innovators, it was selected for use in the study described herein.

The Orange County Public School System, located in central Florida, has been extensively involved in change and innovation since the early 1970s. In 1984, the school system was a large urban school system with almost 80,000 students and approximately 11,000 employees. It had 105 schools, with 68 of those being elementary schools (Orange County Public Schools Statistical Report, 1984). Many noteworthy changes and innovations have occurred during the period from 1970 to 1985 which have led some persons to view the school system as one of the more dynamic and innovative school districts in the State of Florida.

Some of the innovations which occurred in the decade preceding 1985 include an implementation of management systems for elementary mathematics and reading programs, reorganization of the management team by eliminating 44 management positions, a career management incentive system to provide a more equitable salary determination for employees, merit pay for teachers and managers, a beginning teacher program, and widespread introduction of computers.

One of the most significant innovations was the elementary computer curriculum which was developed during the 1982-83 school year. It was designed to provide students in kindergarten through the eighth grade with a sequential curriculum of computer literacy. The elementary computer curriculum was piloted in nine schools in 1983-84 and was mandated by the deputy superintendent for instruction to be implemented in all 68 elementary schools during the 1984-85 school year.

Considering the information regarding the significance of change and innovation, and that persons have varying stages of concern about innovations, the focus of the study reported herein was on the implementation of the elementary computer curriculum. More exactly, there was a determination of the specific stages of concern of selected elementary implementers about the adoption of the curriculum and the conditions that were viewed as expediting or inhibiting its adoption and implementation.

The Problem

Statement of the Problem

The focus of the study was on the stages of concern about an innovation in a large urban school system, the Orange County Public School System. Specifically, in regard to the implementation of an elementary computer curriculum, answers to the following questions were sought:

1. To what extent were there commonalities or differences

in the stages of concern about the elementary computer curriculum innovation among members of the implementation teams in selected schools in the first year of adoption (nonpilot schools) and among members of the implementation teams in the schools in the second year of adoption (pilot schools)?

2. To what extent were there differences between the pilot and nonpilot schools' implementation teams in regard to their stages of concern about the elementary computer curriculum innovation?

3. To what extent were there differences between the two pilot schools that were in the highest stage of concern and the two nonpilot schools that were in the highest stage of concern (based on responses of members of the implementation teams) in regard to selected personal variables of members of the implementation team and school-related variables?

4. To what extent were there differences between the two nonpilot schools that were in the lowest stage of concern (based on responses of members of the implementation teams) and the two pilot schools that were in the lowest stage of concern in regard to selected personal variables of members of the implementation teams and school-related variables?

5. For the two pilot and two nonpilot schools that were in the highest stage of concern and the two pilot and non-pilot schools that were in the lowest stage of concern,

what did members of the implementation teams perceive to be conditions that tended to expedite or inhibit the adoption of the elementary computer curriculum innovation?

Delimitations

1. The study was confined to 18 of the 68 elementary schools in the Orange County Public School System. Specifically, the study was confined to 9 schools that were pilot schools for the elementary computer curriculum during the 1983-84 school year and 9 schools randomly selected from the 59 that implemented the elementary computer curriculum during 1984-85. Within each school, the data were confined to that collected from the implementation team (principal, curriculum resource teacher, and classroom teachers who were key to the implementation).

2. The data regarding stages of concern were confined to the responses of members of the implementation team to the SoCQ (Appendix A).

3. Data regarding the personal variables of sex, age, highest degree earned, total years in education, number of years in present school, number of different schools served as an administrator or teacher, length of time involved with computers, perceptions of themselves in terms of proficiency as a computer user, and formal training in computers, were confined to responses of members of the implementation teams to a researcher-prepared questionnaire (Appendix B).

4. Data regarding the school-related variables of socioeconomic status of the students, size of school, standardized test information, age of school, length of time the principal had been there, teacher turnover information, student turnover information, racial composition of school, and pupil/teacher ratio were confined to that gathered from school system records and reports.

5. Data regarding perceptions of the implementation team about the conditions associated with the adoption of the innovation were confined to that gathered from a group interview with each implementation team using a researcher-developed interview guide (Appendix C).

Limitations

The descriptive study had certain limitations that must be identified and stated in order that the conclusions of the study may be regarded in proper perspective. The following limitations were identified:

1. The external validity of the study existed only to the degree that generalizations drawn from the study are applied to a school district similar to the Orange County Public School System.

2. The accuracy of the data was limited by the perceptions of the respondents to the SoCQ. To the extent that statements were not accurately perceived, the study lacked validity.

3. The conditions that were identified as inhibiting or expediting the adoption of the innovation were limited to

data gathered from interviews with implementation team members. Therefore, the conditions cited should not be considered the only influences that impacted the adoption of the elementary computer curriculum.

Justification for the Study

Since change is part of life and innovations are necessary in almost everyone's job, it is important to learn about the process and how innovations can be implemented with minimal dysfunction to the organization. Educators are frequently impacted with changes in society as well as those which are imposed by the organizational leaders. Managers must be aware of the dynamics of the change process in order to assist in the implementation of innovations (Havelock, 1973, p. ix).

Hall et al. (1979) described the CBAM as a method of identifying stages of concern about a particular innovation. As previously stated, the stages of concern are awareness, informational, personal, management, consequence, collaboration, and refocusing. He believed that persons moved through the stages developmentally depending upon "personal makeup, knowledge, and experiences" (p. 5). He also contended that as one's closeness to an involvement with an innovation varied, one's type and intensity of concern differed as well.

Fuller (1970) stated that concerns about innovations appeared to be developmental because earlier concerns must be resolved, or lowered in intensity, before later concerns emerge. She also contended that resolution of earlier concerns and the arousal of later concerns are not necessarily accomplished by having more knowledge about or time with the innovation. She believed that some people simply do not have the capability to deal with an innovation. In general, however, she agreed that a person's concerns about an innovation develop toward the later stages with time, successful experience, and the acquisition of new knowledge and skill (p. 7).

Hall et al. (1979) believed that understanding and describing the process of change in educational institutions, while still maintaining sight of the needs of the individual, was an extremely important and challenging task for managers of the change process. Havelock (1973) stated that there are two ways to look at innovations and stages of adoption. One way is to see it from the point of view of those who are being changed, and the other is to see it from the perspective of someone who is trying to change someone else.

The CBAM can be used as a diagnostic tool for assessing where individual members of an organization are in relation to the adoption of an innovation. Hall et al. (1979) further proposed that managers of an innovation can use the diagnostic data to develop a prescription for needed interventions to facilitate the change effort.

The researcher believed that the study would allow readers to understand the various influences which impact the change process. There were certain components identified which could aid in the implementation of innovations in the future. Additionally, certain elements which may impede or even stymie the innovation process were identified.

Few school districts have inservice activities which are directly related to the change process; therefore, the study results could precipitate the development of inservice activities for both teachers and administrators. The inservice activities could be very valuable to initiators of change, whether the change is in the classroom or encompassing the entire school district.

Finally, it was believed that the study could serve as a model for large urban school district managers interested in analyzing and understanding the process of change and the importance of allowing stages of adoption of an innovation to take place in a logical and systematic manner.

Definition of Terms

Change. This term refers to any alteration or disturbance in the status quo (Havelock, 1973, p. 4).

Change/innovation process. This term refers to how the change or innovation comes about.

Conditions. This term refers to any situation or circumstance that was viewed by a member of an implementation team as expediting or inhibiting the adoption of an innovation.

Concern. This term means to be in a mentally aroused state about something. The strength and intensity of the arousal will depend on the person's past experiences and associations with the subject of arousal (Hall et al., 1979, p. 6).

Concerns-Based Adoption Model (CBAM). This term refers to a schema developed at the University of Texas Research and Development Center for Teacher Education to document the stages of concern expressed by adopters of various educational innovations. The model consists of three major elements. The Stages of Concern (SoC) are expressed as awareness, informational, personal, management, consequence, collaboration, and refocusing. The second dimension, Levels of Use Questionnaire (LoUQ), focuses on the knowledge, skills, and behavioral aspects of the individual's involvement with a change. The third dimension is the SoCQ which was designed to identify the specific stage of concern about an innovation. The developers of this model believed that each member of a formal organization, such as a school or college, will have his/her SoC about and LoU of a particular innovation and that by using the information derived from the CBAM, educational managers will be able to implement needed innovations in a more efficient manner and with greater acceptance (Hall et al., 1979, p. 3).

Elementary principal. This term refers to the administrator directly responsible for the management of the school and for carrying out the policies of the school board within that school.

Elementary school. This term refers to a school established and organized for teaching pupils on any grade level from kindergarten through grade six.

High concern schools. This term refers to the four elementary schools in the study whose implementation teams had their most intense concerns at the highest stages of concern.

Implementation team. This term refers to the persons who were personally and intimately involved in the implementation of the elementary computer curriculum. The persons included for purposes of the study were the school principal, curriculum resource teacher, and classroom teachers who taught the curriculum.

Innovation. This term refers to any change which represents something new to those being changed. It is a generic name given to an issue, object, problem, or challenge which is the focus of a concern (Hall et al. 1978, p. 6).

Low concern schools. This term refers to the four elementary schools in the study whose implementation teams had their most intense concerns at the lowest stages of concern.

Nonpilot schools. This term refers to the nine schools that were randomly selected from 59 schools which did not participate in the elementary computer curriculum in the 1983-84 school year, but implemented the program in 1984-85 and were in their first year of adoption of the program.

Personal variables. This term refers to sex, race, age, highest degree earned, total years in education, number of years in education, number of years in present school, number of different schools served as an administrator or teacher, length of time involved with computers, perceptions of themselves in terms of proficiency as a computer user, and formal training in computers.

Pilot schools. This term refers to the nine schools that implemented the elementary computer curriculum during the 1983-84 school year and were in their second year of adoption of the program.

Planned change/innovation. This term refers to a change or innovation that takes place through a deliberate process which is intended to make both acceptance by and benefit to the people who are changed more likely.

School-related variables. This term refers to size of school, socio-economic status of students, standardized test information, age of school, length of time principal had been there, teacher turnover, student turnover, racial composition of school, and pupil/teacher ratio.

Stages of Concern Questionnaire (SoCQ). A 35-item instrument developed as a part of the CBAM to measure the SoC an individual has about a particular innovation. The seven SoC measured are as follows:

Awareness. Little concern about or involvement with the innovation is indicated.

Informational. A general awareness of the innovation and interest in learning more detail is indicated. The person seems to be unworried about herself/himself in relation to the innovation. She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects, and requirements for use.

Personal. Individual is uncertain about the demands of the innovation, her/his inadequacy to meet those demands, and her/his role with the innovation. This includes analysis of her/his role in relation to the reward structure of the organization, decision making, and consideration of potential conficts with existing structures or personal commitment. Financial or status implications of the program for self and colleagues may also be requested.

Management. Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling, and time demands are utmost.

Consequence. Attention focuses on impact of the innovation on students in her/his immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance and competencies, and changes needed to increase student outcomes.

Collaboration. The focus is on coordination and cooperation with others regarding the use of the innovation.

Refocusing. The focus is on exploration of more universal benefits from the innovation, including the possibility of major changes or replacements with a more powerful alternative. Individual has definite ideas about alternatives to the proposed or existing form of the innovation. (Hall et al., 1979, p. 7)

Procedures

The problem in the investigation was to identify and compare the stages of concern of implementation team members in selected schools relative to the implementation of the elementary computer curriculum in the Orange County Public School System and to analyze the conditions viewed as expediting or inhibiting the adoption and implementation of the curriculum. The following sections detail the procedures that were used to conduct the investigation. First, the setting of the proposed study is reviewed. Second, the procedures for identifying the participants to be surveyed are stated. Next, the data collection procedures are explained. Finally, there is a description of the data analysis procedures.

Setting of the Study

The study was conducted in the Orange County Public School System, a large urban school district in Orlando, Florida. The population served by the school district comes from a broad socio-economic base. In 1984, the total population of Orange County was 458,593; 22% of the population was of minority races, with the black race contributing the largest minority. In 1984, the economy of Orange County was based on tourism, manufacturing, agriculture, finance, and trade (Orange County Planning Department, 1984).

In the 1983-84 school year, there were 79,279 students in kindergarten through twelfth grade. There were 105 schools; 68 elementary schools, 19 junior high schools, 9 high schools, 4 vocational centers, 4 exceptional education centers, and one alternative education center. The enrollment in the elementary schools was 41,516 students. Of these elementary students, 69% were white, 24% were black, 5% were Hispanic, and 2% were Pacific Islander and American Indian. The 68 elementary schools in the district varied in both geographic and demographic features; they included urban, suburban, and rural schools. Student enrollment in the elementary schools ranged from 275 to 1,085, with an average enrollment of approximately 600 (Orange County Statistical Report, 1984).

Identification of Schools and Participants

From the 68 elementary schools in the district, members of the implementation teams in 9 schools that were pilot schools for the elementary computer curriculum in 1983-84 participated in the study. Additionally, members of implementation teams from 9 schools randomly selected from the 59 schools which did not participate in the pilot project, but implemented the elementary computer curriculum in 1984-85, participated in the study. The members of the implementation teams varied from three to eight in each pilot and nonpilot school. The total number of participants was 107.

Instrumentation and Data Collection

In each of the 18 schools, the implementation teams' stages of concern about the implementation of the elementary computer curriculum were measured by the SoCQ that was developed by Gene Hall and others at the Research and Development Center for Teacher Education at the University of Texas in Austin, Texas (1979). Each implementation team member was asked to complete the questionnaire which required respondents to react to 35 statements in terms of their present concerns about the elementary computer curriculum. Respondents were asked to circle numbers 0 to 7 to indicate the degree of accuracy of the statements (Appendix A). According to Hall et al. (1979),

> during the past 2 1/2 years the research related to measuring stages of concern about the innovation, the 35-item Stages of Concern Questionnaire was developed. In a one-week test-retest study, stage score correlations ranged from .65 to .86 with 4 of the 7 correlations being above .80. Estimates of internal consistency (Alpha Coefficients) range from .64 to .83 with 6 of the 7 coefficients being above .70. A series of validity studies was conducted, all of which provided increased confidence that the SoC Questionnaire measures the hypothesized stages of concern. (p. 20)

The questionnaire was designed in such a way that each of the seven fundamental stages is represented by five statements. Each set of five statements consists of items that are representative of concerns which are prominent at a specific stage of concern. The raw score for each set of five statements is simply the sum of the responses to the five statements. Appendix D shows the item numbers and statements, arranged according to the SoC.

Percentiles were derived from the raw scores of each stage of concern. School scores were obtained by averaging the raw score for each individual member of an implementation team and converting the average raw score to a percentile.

Data relative to personal and school-related variables were gathered from a questionnaire (Appendix B) attached to the SoCQ. The personal data collected related to age, highest degree earned, total years in education, number of years in present school, number of different schools served as an administrator or teacher, length of time involved with computers, perceptions of themselves in terms of proficiency as a computer user, and formal training in computers. School-related data collected included socio-economic status of students, size of school, standardized test data, age of school, length of time the principal had been there, teacher turnover information, student turnover information, racial composition of school, and pupil/teacher ratio. The school-related data were gathered from school system records and reports.

A structured interview (Appendix C), using a researcher-developed interview guide, was conducted by a staff member from the Research and Evaluation Department of the Orange County Public Schools System with the members of the implementation teams in the two pilot and two nonpilot schools that were identified as being at the highest stage of concern. The same procedure was used for the two pilot and two nonpilot schools that were identified as being at the lowest stage of concern. The interview guide focused on conditions that were viewed by the implementation teams as expediting or inhibiting the adoption of the elementary computer curriculum.

Data Analysis Procedures

To answer question 1, which focused on the extent to which there were commonalities or differences in the stages of concern about the elementary computer curriculum among members of implementation teams in both pilot and nonpilot schools, a percentile score was derived from the raw score on the Stages of Concern Questionnaire (SoCQ) for each implementation team member. A descriptive profile was developed showing the variation among the implementation team members in pilot and nonpilot schools. Additionally, a frequency distribution was developed to depict responses of implementation team members on the SoCQ. To answer question 2, which focused on the differences between pilot and nonpilot schools as it related to the stages of concern about the elementary computer curriculum, the school scores of the pilot schools were compared, by inspecting tabular data, with the nonpilot schools.

To answer question 3, which focused on the differences between the two pilot schools that were in the highest stage of concern and the two nonpilot schools that were in the highest stage of concern, a narrative and tabular report of the responses of the implementation teams to the researcher-prepared questionnaire was prepared. Question 4, which focused on the differences between the two pilot schools and the two nonpilot schools that were in the lowest stage of concern, was analyzed by using the same procedures as in question 3.

As suggested above, only descriptive statistics were used. That is, there was no attempt to use inferential statistics for the purpose of determining significant differences at a given probability level. The reason for this was that any differences found were real and true differences for those involved and the schools were not representative in the sense of a sample from a population to which generalizations without qualifications could be drawn.

Question 5, which focused on conditions which were viewed by members of the implementation teams as expediting or inhibiting the adoption of the elementary computer curriculum, were analyzed by reporting, in both narrative and tabular form, the results of the interview. The data from the two pilot and two nonpilot schools that were in the highest stage of concern, and the two pilot and two nonpilot schools that were in the lowest stage of concern, were analyzed in this manner.

Organization of the Remainder of the Research Report

Chapter II contains a review of related literature. Chapter III is the presentation and analysis of data. Chapter IV contains a summary of the findings, conclusions, and discussion.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

In the review of related literature, major emphasis is placed on (a) background literature on change and innovation, (b) models related to the adoption of innovations, and (c) research related to the CBAM.

Change and Innovation: Background Literature

There is clear evidence that the study of change and innovation has accelerated in the past 30 years. In fact, there was no heading for educational innovation in the Reader's Guide to Periodical Literature until 1969 (Gaynor, 1977, p. 236). In the period beginning around 1970, several annotated bibliographies on the study of change and innovation were published. Major works by Baldridge (1970); Havelock, Huber, and Zimmerman (1969), and Maguire, Temkin, and Cummings (1971) have contained reviews of thousands of individual entries.

According to Gaynor (1977), much of the early study of change had its roots in sociological theory (p. 237). He listed the evolutionary, functional, and conflict theories as being important background for the current study of change and innovation (p. 240).

Bennis, Benne, Chin, and Corey (1969) believed that any change strategy should be based on an understanding of the behavioral sciences (p. 23). They classified strategies for change into three major groups: empirical-rational, normative-re-educative, and power-coercive.

The empirical-rational strategy was based on the assumption that persons are rational and will follow their self-interests. Individuals were characterized as being rational human beings who listen, meditate, and process information, and then make decisions that are predictable.

In normative-re-educative strategy persons were described as active, impulsive, and in need of satisfaction. This strategy assumes that persons change only when they alter their normal actions and patterns and commit themselves to new ones.

The power-coercive strategy involves the use of political and economic bases in the exercise of power to bring about change. Some of the legitimate sources of power that are used to bring about change are administrative decisions, negotiations, strikes, judicial decisions, and statutory changes.

Many authors use change and innovation interchangeably as noted by Cunningham, Hack, and Nystrand (1977),

> the terms "change" and innovation" are used interchangeably here, except that innovation connotes the idea of a product with definable characteristics whereas change focuses not on the characteristics of the innovation, per se, but upon the differences between the characteristics of the innovation that is implemented (or as proposed) and the relevant characteristics of

> the system prior to the implementation of the innovation. (p. 254)

Therefore, for the purpose of presenting a composite review of related literature, change, innovation, and planned change will be referred to both singly and interchangeably.

Researchers have generally agreed that the study of change and innovation is significant enough to merit intensive investigation. Most believe that organizational leaders should know how to implement an innovation and to understand some of the dynamics associated with the change process. According to Havelock (1973),

> the executive leadership of an organization has two responsibilities: One is maintenance of the system the way it is, and the other is changing the system so that it performs better. In other words, the leader is both a change agent and a resister of change. Much of his time and energy must be spent on keeping things going, keeping people motivated, making sure that the work of the organization gets done at least as well as it has in the past. But if he is on top of his job, the good leader will also spend some of his time working to change his system; he will be looking for better ways to do things, new solutions to old problems, and new problems that he and his staff should be concerned about. Hence, he has a real and continuing need to know about change and the process of change. (p. ix)

Thompson (1965) defined organizational change as "the generation, acceptance, and implementation of new ideas, processes, products, and service" (p. 2). He believed that organizations must be able to produce as well as to utilize new ideas if they are to be considered innovative. Becker and Whisler (1967) did not include the creation of new ideas as part of their definition. They defined organizational innovation as "the first or early use of an idea by one or a set of organizations with similar goals" (p. 463). Becker and Whisler believed that for an organization to be given credit with an innovation, they must take the risk of being one of the first to use it, regardless of the origin of the idea.

Mohr (1969) excluded both the creation of ideas and its first or early use from his definition of organizational innovation; however, he introduced the notion of success. He stated that organizational innovation "involved the successful introduction into an applied situation of the means or end that are new to that situation" (p. 112). Mohr believed that the success aspect implied the acceptance of an innovation by those involved in the applied situation.

A definition suggested by Boise and Rowe (1973) stated that organizational innovation is "the successful utilization of processes, programs, or products which are new to an organization and are introduced as a result of decisions made within that organization" (p. 6). Based on this definition, an organization could be credited with an innovation only if it accurately predicted the need for a new idea and implemented it in advance of some irresistible external demand.

Havelock (1973) described innovation as "any change which represents something new to the people being changed" (p. 4). He went further and stated that the innovation will also usually mean "a change which benefits those who are changed" (p. 4). He differentiated change from innovation in that change is "any significant alteration in the status quo" (p. 4).

In a comprehensive work on change, Miles (1964) defined educational innovation as

> a species of the genus change. Generally speaking, it seems useful to define innovation as a deliberate, novel, specific change, which is felt to be more efficacious in accomplishing the goals of the system . . . It seems helpful to consider innovations as being willed and planned for, rather than as occurring haphazardly. (p. 14)

While several authors have offered definitions of innovation, even more have attempted to describe the change and innovation process. Havelock (1973) described it in terms of stages. The stages were (a) building a relationship, (b) diagnosing the problem, (c) acquiring relevant resources, (d) choosing the solution, (e) gaining acceptance, and (f) stabilizing the innovation and generalizing self-renewal (p. 11). He pointed out that not every one of these stages is necessarily a part of every innovative process, nor do they occur in the order listed.

In his examination of change, Lewin (1951, p. 5) identified three phases of the change process: unfreezing, changing, and refreezing. The aim of unfreezing is to bring about a readiness of an individual to change. It is the thawing out that causes the individual or group to realize the need for change. The changing process comes about after the individuals have become motivated to assume new patterns of behavior. Lewin explained that the refreezing process takes place when the newly acquired behavior becomes an integral part of the individual or group's personality.

Many factors are viewed by experts in the study of change as being important to the change process. Williams (1972) stated that "change has a greater chance of success when those persons who will be affected by the change are involved in its planning and implementation" (p. 17). Ohme (1977) supported the need for involvement in his succinct Ohme's Law of Institutional Change: "The success of a plan does not necessarily depend on its merit, but rather upon the right combination of leadership, plus client and practitioner involvement" (p. 263).

Goodlad (1975) believed that for constructive change to take place, a productive tension must exist between an organism wanting a better condition and an organism wishing to serve its self-interest (p. 163). He stated that this sort of symbiotic relationship with the two self-interests operating with an outer orientation toward change and an inner orientation toward change proved to be an ideal situation (p. 164).

Griffiths (1964) questioned the ability of organizations to bring about change on their own when he stated

> since the tendency of organizations is to maintain a steady state, the major impetus for change comes from outside rather than inside an organization. Since organizations are open systems, they have a self-regulating characteristic

> which causes them to revert to the original state following a minor change made to meet demands of the supra system. (p. 431)

Change comes about in a variety of ways. English (1975) stated that "change almost always comes about as a result of an external mandate" (p. 136). He further contended that administrative systems are extremely reluctant to implement innovations which might threaten to change the power structure or its sources. However, these same systems adopt only those ideas which appear to reinforce their power base. When innovations are considered for implementation, much attention must be given to the power system with which one is dealing. Kimbrough (1967) stated that practitioners must be careful to "open their eyes" (p. 128) to the possibility that the nature of the power system is different than what is described in popular textbooks. He described several factors which have impact on the way decisions are made. Included were, knowledge of subsystems of the organization, formal and informal groups, knowledge of influentials, level of participation, critical norms of the organization, latent power sources, and basic beliefs (p. 129). These elements are significant to consider if one expects an innovation or change to take place.

Howard and Brainerd (1975) discussed team unity as it related to change and innovation. They stated that it is important to get commitment to move toward new concepts rather than to simply try to improve the status quo.

Additionally, a collegial group will become more dynamic and motivated if it is working with innovations rather than "worn out old ideas" (p. 44).

In their analysis of managerial types, Blake and Mouton (1964) described the 9, 9 manager (a manager who focuses on the task as well as personal relationships) as one who is likely to be known as an innovator and an experimenter due to the readiness to try out novel approaches. The 9, 9 manager was viewed as one who is always looking for good ideas, no matter who possesses them. They believed that one of the best ways of inducing change is to experiment.

Models Related to the Adoption of Innovations

There are many models in existence which relate to the adoption and implementation of innovation or planned change. One of the most widely referenced is the Clark-Guba model. Clark and Guba (1965) identified four distinct functions necessary for educational change. They are research, development, diffusion, and adoption. The role of the researcher is to create knowledge, the role of the developer is to engineer the innovation based on that knowledge, that of the diffuser is to spread the innovation, and that of the adopter to adapt the innovation to the situation in which it is to be used (p. 117). Many other models are based on the same sequence used by Clark and Guba.

According to Chin (1961), there are two basic categories of models that the change agent may use: the systems model and the developmental model (p. 297). He specified a terminology to be used for each. The terms system, boundary, tension, stress conflict, equilibrium, steady state, and feedback are associated with the systems model; while direction, identifiable state, form of progression, forces, and potentiality are used with the developmental model (p. 308).

Bennis (1963) referred to three models for planned change: (a) the equilibrium model, in which the mechanism for change is tension released through anxiety reduction; (b) the organic model, in which the mechanism for change is the redistribution of power and conflict resolution; and (c) the developmental model, in which the mechanism for change is the transformation of values.

Hage and Aiken (1970) used two models to describe the change process. The organic model refers to a dynamic style of change, and the mechanical model describes a static style. These models are similar to the ones of Bennis.

Several models were identified by Glaser and Ross (1971) which depict certain aspects of the model of Clark and Guba (1965). The Fiat model describes the change that is brought about by force of power, administrative regulation or law. This type of change is common in the military and in bureaucratic organizations. The Platonic model assumes that potential users were persuaded to change through educational and rational appeal. The Apostolic model attempts to bring about change through testimony and personal presentation as well as through written persuasion. The conversion model uses a strong emotional component based on involvement in an experience with a group of peers. The reinforcement of the peer group helps facilitate the change process in this model.

Fairweather (1971) developed the model of experimental social innovation which had the following components: definition, innovation, comparison, implementation, and evaluation. The first component is the definition of a particular problem and its parameters in its actual setting. Next, the innovation step is where different solutions or alternatives are proposed as innovative subsystems. The subsystems go through a comparison process whereby each innovative subsystem is evaluated as to its ability to solve the problem. After implementation, the evaluation of the subsystems is an ongoing process that takes many months and even years to complete. This slow evaluation process allows the innovation to be in place long enough to achieve results.

In a publication, Adopters of New Farm Ideas (Farm Foundation and Federal Extension Service, 1963), the adoption of innovations or new ideas was viewed as an interrelation of two processes, diffusion and adoption. The adoption process was described as follows:

> 1. Awareness. The individual knows of the new idea but lacks information about it.
>
> 2. Interest-information. The individual becomes interested in the idea and seeks more information about it.
>
> 3. Evaluation-application-decision. The individual makes a mental application of the new idea to his present and anticipated future situation and makes the decision whether to try it or not.
>
> 4. Trial. The individual uses the new practice on a small scale to validate its workability on his own farm.
>
> 5. Adoption. The individual uses the new practice on a full scale and incorporates it into his way of farming. (p. 3)

In addition to outlining the adoption process, the publication described the diffusion patterns of adopters of innovations. The first to adopt a new idea are innovators which represent approximately 2.5% of a population. The next to adopt are called early adopters and represent approximately 13.5% of a population. The majority falls within the next category and are called the early and late majority with approximately 34% in each of the two groups. Finally, the last to adopt an innovation are the late adopters, or laggards. They comprise approximately 16% of a population. The publication stated that each group had personal and social characteristics that were different from the others.

Miles (1964) outlined a model that included design, awareness/interest, evaluation, and initial trial and post trial as integral components. In the design stage, major change alternatives were analyzed and developed. During the awareness/interest stage, the focus is on communication. The evaluation stage is the point at which an analysis of the rewards and costs of innovation is made. The final stages are the initial trial stage, where the adopter is given plenty of support and help, and the post trial stage in which follow up and reinforcement are paramount (p. 650).

While admitting there is no single best strategy for implementing change, Hersey and Blanchard (1982) stated that "given a choice between the polarities of directive and participative change, most people would tend to give the nod in our society to the participative change cycle" (p. 274). They proposed a model that is essentially a two-step process with various components in each step.

The first step of the model proposed by Hersey and Blanchard (1982) is that of diagnosis which involves asking the right questions, sensing the environment of the organization, and establishing techniques of data collection and observation. In diagnosing for change, managers should find out the following:

> 1. What is actually happening in a given situation?
>
> 2. What is likely to happen if no change takes place?
>
> 3. What would people ideally like to be happening in this situation?
>
> 4. What are the blocks or restraints stopping movement from the actual to the ideal? (p. 267)

The implementation step as proposed by Hersey and Blanchard (1982) is simply the translation of the diagnostic data into various goals, plans, strategies and procedures. Included in the implementation step is an ongoing evaluation and feedback mechanism (p. 269).

Goodlad (1975) described the League model which he said was patterned after the research, development, and diffusion model of the federal government (p. 15). His League model contains provisions for school change and innovation to be an internal process that responds to needs, has support and reinforcement from peer schools, has training programs designed to meet needs, and has various communication devices for diffusion of ideas (p. 196).

Research Related to the Concerns-Based Adoption Model (CBAM)

Studies that utilized the CBAM and more specifically, the Stages of Concern Questionnaire (SoCQ), are reviewed in this section. The studies that are important to the reported study are primarily educational innovations.

Research by Hatcher and Strathe (1982) applied the SOCQ to determine the impact of a Title I project and its relationship to the district educational program. The study measured student achievement with the California Achievement Test. Upon implementation of the Title I project, the students made normal gains in achievement. Two years into the program, however, student achievement began to diminish. The SoCQ indicated little integration of the project into the total district curriculum.

Bethel and Hord (1981) evaluated the impact of a staff development project conducted by the National Science Foundation on elementary teachers. The one-year project provided teachers instruction in environmental science education. Results of the study indicated that the attitudes of teachers who participated in the program changed significantly as compared to a control group of teachers who did not participate in the program. The authors stated that the Stages of Concern Questionnaire proved to be a useful instrument for identifying change in teachers in a specific and definite manner.

Bosman and Sloan (1979) compared the concerns of principals responsible for administering mainstreaming programs to the concerns of teachers responsible for providing instruction for mainstreamed students. The study focused on 76 elementary schools in northern Illinois. Eight hundred seventeen teachers were involved in the study. From the research it was found that principals tended to be more concerned about the impact of the program on students and colleagues, and teachers were more concerned about the impact of the program on themselves.

The SoCQ was used by Holloway (1980) to assess the concerns of professional educators in Kansas in relation to the Education of All Handicapped Children Act (P.L. 94-142). The study found educators in Kansas were in the early stage of adoption. The data provided the basis for longitudinal studies.

Sanders and George (1980) used the SoCQ to measure adoption of a program in Texas that was designed to establish learning resource centers in rural school districts. The questionnaire was given to 97 teachers in appropriate school districts. From 30 responses it was learned that most respondents were unaware of the learning resource center program and that confusion existed between the concept of a learning resource center and a library.

George and Rutherford (1978) used the SoCQ in a two-year study of team teaching to determine if a relationship existed between concerns of teachers about team teaching and the level of use of team teaching. They determined that the users of the innovation had high concerns in stages 4, 5, and 6, while limited users or nonusers had higher concerns in stages 0 through 2. They found that there was a definite relationship between the concerns about and use of an innovation. They also concluded that as use was increased, concerns shifted over time to the higher stages: 4, 5, and 6.

Hall (1978) used the SoCQ to find out about the concerns of teachers about inservice teacher training. He determined that teachers who were initially involved in inservice activities had greater concerns in stages 0, 1, and 2 than teachers who had one or more years of experience in inservice training activity. He also found that as support from inservice facilitators increased, the concerns about inservice training shifted to the higher stages of concern.

In a related study about implementing competency testing, Hall (1978) used the SoCQ to determine concerns about the adoption of a competency testing program. He found that because of the inherent threat involved in competency testing, personal concerns were high (stage 2). In addition, refocusing (stage 6) concerns were also high because many persons were opposed to the implementation of competency testing.

Loucks and Melle (1980) studied the concerns of teachers about the implementation of a district-wide science curriculum for grades three through six. They used the SoCQ to form the basis for staff development activities for a three-year period. Based on previous research findings that concerns center around the awareness, informational, and personal stages during initial implementation of an innovation, and their own findings that agreed with previous research, they recommended that the innovation be introduced in small, close-knit meetings. Additionally, they recommended that few staff development activities be developed to address higher stage concerns until later in the implementation process.

Leary (1983) undertook a study to determine whether teacher SoC relative to a curriculum innovation can be predictably influenced through concerns-based staff development. Among the conclusions reported, was a finding that the SoC of teachers can be predictably influenced as a result of the concerns-based staff development. He used a new kindergarten through sixth grade science curriculum in one elementary school in Canada as the innovation for his study. He designed specific staff development activities to decrease the amount of time for teachers' concerns to move from personal concerns to impact concerns.

Smith (1984) used the SoCQ to determine concerns of teachers who were involved in a beginning teacher program as compared to a control group that was not involved in it. He found a high level of concern in the lower stages of the SoC for teachers who were involved in the program. He found that teachers who were not involved in the beginning teacher program generally were in stage 0, with little or no knowledge or concern about the program.

CHAPTER THREE

PRESENTATION AND ANALYSIS OF DATA

The focus of the study was on the stages of concern about the adoption of an innovation in a large urban school system, the Orange County, Florida, Public School System. The innovation under investigation was the elementary computer curriculum. There were five basic questions which gave direction to the study. The first two questions were designed to determine the commonalities and/or differences in the stages of concern about an innovation among and between pilot and nonpilot schools. Specifically, question 1 was designed to determine if there were commonalities and/or differences in the stages of concern about the elementary computer curriculum among members of implementation teams in both pilot and nonpilot schools. Question 2 was designed to determine the differences in the stages of concern about the elementary computer curriculum between the implementation teams in pilot and nonpilot schools. The stages of concern were measured by the Stages of Concern Questionnaire (SoCQ) and a school score was derived by converting the mean raw score for each implementation team into a percentile. A descriptive profile was developed to show the variations among pilot and nonpilot schools and to make comparisons between pilot and nonpilot schools. Questions 3 and 4 focused on the differences between the two pilot and two nonpilot schools that were in the highest stage of concern, and the differences between the two pilot and two nonpilot schools that were in the lowest stage of concern in regard to selected personal variables for implementation team members and school-related variables. Responses to a researcher-prepared questionnaire are presented in narrative and tabular form to answer questions 3 and 4. Question 5 was designed to determine conditions that inhibited or expedited the adoption of the elementary computer curriculum as determined by members of the implementation teams. A researcher-prepared interview guide was used to gather information to answer question 5. Results are presented in narrative and tabular form.

From the 68 elementary schools in the district, members of the implementation teams in 9 schools that were pilot schools for the elementary computer curriculum in 1983-84 participated in the study. Additionally, members of the implementation teams from 9 schools, randomly selected from the 59 schools which did not participate in the pilot project but implemented the elementary computer curriculum in 1984-85, participated in the study. Membership of the implementation teams varied from 3 to 8 and totaled 107.

The required materials for the research included three instruments: the SoCQ, a researcher-prepared questionnaire, and a researcher-prepared interview guide. The SoCQ was used to measure stages of concern about the implementation of the elementary computer curriculum. The researcher-prepared questionnaire was used to gather data to determine the differences between and among the implementation teams in regard to selected personal variables. The researcher-prepared interview guide was used to determine conditions which inhibited or expedited the adoption of the elementary computer curriculum as perceived by members of the implementation teams.

The focus of the present chapter is a presentation and analysis of the data in regard to the aforementioned questions. The first section provides data about the differences and commonalities among pilot and nonpilot schools, and between pilot and nonpilot schools as measured by the SoCQ. This is followed by a presentation of data regarding the differences in selected personal and school-related variables between the pilot and nonpilot schools that were in the highest stage of concern, and the differences between pilot and nonpilot schools that were in the lowest stage of concern as determined by the researcher-prepared questionnaire and data gathered from school system reports. The final section deals with the conditions that were viewed by implementation teams as expediting or inhibiting the adoption of the elementary computer curriculum.

Descriptive Data by Implementation Team Members and Schools Relative to Stages of Concern

The first question concerned commonalities or differences in the stages of concern among members of the implementation teams in pilot and nonpilot schools. Appendix E contains a figure for each of the 18 schools involved. Reference to Figures 1 through 18 in Appendix E shows the reader the individual percentile score for each of the seven stages of concern for each member of each implementation team and the median percentile score for each school implementation team. Review of these data reveals a wide variety of peak scores for individuals within and between school implementation teams.

Another way of examining the data is to look at frequency distributions of individuals' scores in terms of the stages of concern without regard to the specific pilot or nonpilot schools in which they were located. Such data are shown in Table 1. Percentile scores for individuals were fairly well distributed throughout the interval ranges at the awareness (stage 0) stage. For both pilot and nonpilot implementation team members, the most intense concerns for the most members were at the informational (stage 1) and personal (stage 2) stages of concern. The most obvious differences between pilot and nonpilot implementation team members were at the consequence (stage 4) and the collaboration (stage 5) stages of concern. In both cases, larger numbers of nonpilot team members had

Table 1

Frequency Distribution Percentile Scores on Stages of Concern Questionnaire for Implementation Team Members in Pilot (P) and Nonpilot (NP) Schools

Interval	Stage 0 Awareness		Stage 1 Informational		Stage 2 Personal		Stage 3 Management		Stage 4 Consequence		Stage 5 Collaboration		Stage 6 Refocusing	
	P	NP	P	NP	P	NP	P	NP	P	NP	P	NP	P	NP
90-99	8[a]	4	20	22	19	19	7	9	5	14	8	5	4	8
80-89	11	6	11	8	14	11	10	8	5	1	11	13	4	4
70-79	8	6	5	9	1	3	7	3	7	8	3	5	3	5
60-69	11	12	5	5	8	6	8	8	8	8	6	6	12	12
50-59	6	8	5	5	5	6	5	6	4	4	7	6	3	9
40-49	4	6	4	1	1	2	2	8	5	5	5	5	3	3
30-39	4	5	1	2	1	3	7	2	6	7	3	1	10	6
20-29	1	5	0	0	4	4	1	5	4	6	3	2	8	5
10-19	0	2	2	2	0	0	5	4	5	0	5	1	2	2
0-9	0	0	0	0	0	0	1	1	4	1	2	0	4	0

[a] Indicates number of team members whose percentile scores were within the interval range.

their most intense concerns at these stages than pilot school team members.

Many of the pilot and nonpilot team members (24) were in the 80-89 percentile range at the collaboration stage of concern. Few members of implementation teams in both pilot and nonpilot schools were in the 0-9 or the 10-19 percentile ranges. For all stages of concern most of the team members expressed concerns at the 50-59 percentile range or higher. The refocusing (stage 6) stage had an even distribution of percentile scores.

Presented in Table 2 are data regarding the variation among members of implementation teams of pilot and nonpilot schools on the SoCQ. Implementation teams of nine schools had their most intense concerns at the informational (stage 1) stage of concern, and the second largest number, four schools, had their highest concern at the collaboration (stage 5) stage. There were no implementation teams that had their highest concerns at the management (stage 3) and refocusing (stage 6) stages. There were two implementation teams that had their highest concerns at the personal (stage 2) stage, two teams had their highest concerns at the awareness (stage 0) stage, and one team had its highest concerns at the consequence (stage 4) stage.

Further analysis of the data showed that the implementation teams of 11 schools had their second highest concerns at the personal (stage 2) stage of concern.

Table 2

School Percentile Scores on the Stages of Concern Questionnaire for Pilot (P) and Nonpilot (NP) Schools

School	Stage 0 Awareness	Stage 1 Informational	Stage 2 Personal	Stage 3 Management	Stage 4 Consequence	Stage 5 Collaboration	Stage 6 Refocusing
1P	66	90	89	73	59	76	52
2P	93	69	78	69	66	48	60
3P	53	84	83	34	48	55	26
4P	77	88	83	34	43	72	42
5P	72	80	78	47	43	31	34
6P	60	51	55	43	54	68	47
7P	91	75	70	69	27	36	57
8P	66	72	95	90	59	84	87
9P	72	91	95	94	27	28	26
1NP	81	90	83	73	33	68	73
2NP	66	69	70	56	54	76	38
3NP	53	63	48	30	30	76	57
4NP	46	84	83	43	96	84	87
5NP	72	88	80	85	59	80	69
6NP	72	88	83	73	54	59	47
7NP	53	88	87	77	71	84	60
8NP	46	69	85	73	82	93	60
9NP	72	96	92	85	63	59	52
Median Percentile	69	84	83	71	54	70	54.5

Members of implementation teams of three schools had their second highest concerns at the management (stage 3) stage of concern. Members of the implementation teams at two schools had their second highest concerns at the informational (stage 1) stage, one at the awareness (stage 0) stage, and one at the refocusing (stage 6) stage of concern. No implementation teams had their second highest concerns at the consequence (stage 4) or collaboration (stage 5) stages of concern.

Since members of the implementation teams of most schools had their most intense or second most intense concerns at the informational (nine schools) and personal (15 schools) stages of concern, the researcher determined that most implementation team members had a general awareness of the elementary computer curriculum and some interest in learning more details about it (informational stage 1). Additionally, a large number of the members of implementation teams demonstrated some personal (stage 2) concerns about the adoption of the elementary computer curriculum, which denotes a general lack of confidence about their ability to implement it. High concerns at the personal stage also indicated concern about what role members of implementation teams would play in the implementation effort and how their personal needs would be met. A more detailed analysis and interpretation of the data is contained in Chapter IV.

Also In Table 2 are the median percentiles for each stage of concern for all schools. As the reader can see from the data, overall the implementation teams had their most intense concerns at the informational (stage 1) and personal (stage 2) stages of concern.

The first question has focused on the commonalities and differences in the stages of concern about the adoption of the elementary computer curriculum without regard to whether the participants were located in pilot or nonpilot schools. The focus of question 2 was on the difference between pilot and nonpilot implementation teams.

Presented in Table 3 are data regarding the stages of concern for the pilot schools. Implementation teams of four pilot schools had their highest or most intense concerns at the informational (stage 1) stage of concern. Two teams had their most intense concerns at the awareness (stage 0) stage, and two teams had their most intense concerns at the personal (stage 2) stage. Only one implementation team had its most intense concerns at the collaboration (stage 5) stage.

Additionally, it can be seen in Table 3 that implementation teams of six schools had their second highest concerns at the personal (stage 2) stage of concern. Two teams had their second highest concerns at the management (stage 3) stage, and only one team had its second highest concerns at the awareness (stage 0) stage.

Also presented in Table 3 are the median percentile scores for pilot schools. The highest scores are at the

Table 3

School Percentile Scores on the Stages of Concern Questionnaire for Pilot (P) Schools

School	Stage 0 Awareness	Stage 1 Informational	Stage 2 Personal	Stage 3 Management	Stage 4 Consequence	Stage 5 Collaboration	Stage 6 Refocusing
1P	66	90	89	73	59	76	52
2P	93	69	78	69	66	48	60
3P	53	84	83	34	48	55	26
4P	77	88	83	34	43	72	42
5P	72	80	78	47	43	31	34
6P	60	51	55	43	54	68	47
7P	91	75	70	69	27	36	57
8P	66	72	95	90	59	84	87
9P	72	91	95	94	27	28	26
Median Percentile	72	80	83	69	48	55	47

informational (stage 1) and personal (stage 2) stages, and the lowest are the consequence (stage 4) and refocusing (stage 6) stages of concern.

Presented in Table 4 are data regarding the stages of concern for nonpilot schools. Implementation teams of four nonpilot schools had their highest or most intense concerns at the informational (stage 1) stage of concern. Three teams had their most intense concerns at the collaboration (stage 5) stage. There was one team that had its most intense concerns at the consequence (stage 4) stage, and one team had its most intense concerns at the personal (stage 2) stage of concern.

Implementation teams at six schools had their second highest concerns at the personal (stage 2) stage of concern. One team had its second highest concerns at the informational (stage 1) stage, one had its second highest concerns at the management (stage 3) stage, and one had its second highest concerns at the refocusing (stage 6) stage of concern.

Also presented in Table 4 are the median percentile scores of nonpilot schools. The highest scores are at the informational (stage 1), personal (stage 2), and refocusing (stage 5) stages of concern. The lowest scores are at the consequence (stage 4) and refocusing (stage 6) stages of concern.

In comparing the pilot and nonpilot implementation team percentile scores shown in Tables 3 and 4, there were

Table 4

School Percentile Scores on the Stages of Concern Questionnaire for Nonpilot (NP) Schools

School	Stage 0 Awareness	Stage 1 Informational	Stage 2 Personal	Stage 3 Management	Stage 4 Consequence	Stage 5 Collaboration	Stage 6 Refocusing
1NP	81	90	83	73	33	68	73
2NP	66	69	70	56	54	76	38
3NP	53	63	48	30	30	76	57
4NP	46	84	83	43	96	84	87
5NP	72	88	80	85	59	80	69
6NP	72	88	83	73	54	59	47
7NP	53	88	87	77	71	84	60
8NP	46	69	85	73	82	93	60
9NP	72	96	92	85	63	59	52
Median Percentile	66	88	83	73	59	76	60

some widespread differences in the pilot and nonpilot schools in regard to the higher stages of concern: consequence, collaboration, and refocusing. The nonpilot school team members had more intense concerns at these stages than pilot schools. The differences between pilot and nonpilot implementation teams were not widespread at the awareness, informational, personal, or management stages. However, the data presented in Table 1 shows that among individual team members in both pilot and nonpilot schools there are extreme differences in the stages of concern.

Descriptive Data Regarding Personal and School-Related Variables

Presented in Table 5 are data regarding the school-related variables for the two highest concern schools in the pilot and nonpilot groups. The differences for the pupil population, pupil-teacher ratio, teacher turnover, and principal tenure variables were not great, nor were they very great when compared with the district means. However, there were some major differences in the minority, socio-economic status quartile, CTBS mean total battery, and student turnover variables. The most obvious deviations were the percentage of minority student population figures for schools 8P and 4NP, the CTBS mean total battery results for schools 8P and 9P, and the low student turnover rate for school 8P.

As can be seen in Table 6 in regard to the personal variables for implementation members in the high concern

Table 5

Data Regarding School-Related Variables for the Two Pilot (P) and Two Nonpilot (NP) Schools in the Highest Stages of Concern

School									
Category	Number	Pupil Population	Percent of Minority Pupils	Pupil Socio-Economic Status Quartile[a]	Pupil-Teacher Ratio	Pupil CTBS Mean Total Battery	Percent of Teacher Turnover	Percent of Student Turnover	Principal Tenure[b]
Pilot Schools	8P	780	1.9	1	25.2	71.8	13	6	1
	9P	592	21.5	3	23.7	49.2	17	25	1
Nonpilot Schools	4NP	582	35.7	3	23.2	60.0	14	19	4
	8NP	724	15.6	2	25.0	64.0	12	19	1
District Mean		616	22		24.3	58.0	14	17	4.7

[a] Based on school district quartile range determined by percent of free and reduced-price lunches served

[b] Number of years principal had been at the school

schools, there were more differences than commonalities for the percent of males and females, staff mean age, degree level, mean years of teaching experience, mean years in present school, and other involvement in innovations. There were more commonalities than differences in the mean number of different appointments, mean years of computer involvement, percent of team members having formal computer training, and self-assessment as a computer user variables. In two schools, 8P and 8NP, the implementation teams were all female. One school, 9P, had a slight majority of males. The team members' age mean for pilot schools was higher than that of nonpilot schools. There were differences in the percentage of members of implementation teams with masters degrees, in that one of the schools had a higher percentage of members of the implementation team with masters degrees than bachelors degrees. The mean years of teaching experience for team members in one school, 4NP, was considerably lower than that of the other high concern schools. There was a distinct difference in the mean years in the present school, and it ranged from 3 in school 4NP to 17 in school 8P. One school, 4NP, had a much higher percentage of members of the implementation team that had no involvement in other innovations than the other high concern schools.

Presented in Table 7 are data regarding the school-related variables for the two lowest concern schools in

Table 6

Data Regarding Personal Variables for Implementation Team Members in the Two Pilot (P) and Two Nonpilot (NP) Schools in the Highest Stages of Concern

School						Degree		
Category	Number	*N*[a]	Male %	Female %	Mean Age	B.A.	M.A.	Mean Years of Teaching Experience
Pilot Schools	8P	6	0	100	40	75%	25%	19
	9P	8	62.5	37.5	47	60%	37.5%	19
Nonpilot Schools	4NP	8	12.5	87.5	32	37.5%	62.5%	8
	8NP	6	0	100	36	83%	17%	15

[a] Refers to the number of implementation team members

Table 6 -- continued

School						Formal Computer Training		Other Innovative Involvement	
Category	Number	N[a]	Mean Years in Present School	Mean Number of Different Appointments	Mean Years of Computer Involvement	% Yes	% No	% Yes	% No
Pilot Schools	8P	6	17	1.5	2	100	0	50	50
	9P	8	9	3	1	75	25	62.5	37.5
Nonpilot Schools	4NP	8	3	2.7	2.7	50	50	17	83
	8NP	6	7	2	2	100	0	66.7	33.3

[a] Refers to the number of implementation team members

Table 6 -- continued

School			Self-assessment as Computer User				
Category	Number	N[a]	Nonuser	Novice	Intermediate	Old Hand	Past User
Pilot	8P	6	0%	16.6%	66.8%	0%	16.6%
Schools	9P	8	0%	62.5%	37.5%	0%	0%
Nonpilot	4NP	8	12.5%	12.5%	75%	0%	0%
Schools	8NP	6	0%	0%	83.4%	16.6%	0%

[a] Refers to the number of implementation team members

Table 7

Data Regarding School-Related Variables for the Two Pilot (P) and Two Nonpilot (NP) Schools in the Lowest Stages of Concern

School									
Category	Number	Pupil Population	Percent Minority	Pupil Socio-Economic Status Quartile[a]	Pupil-Teacher Ratio	Pupil CTBS Mean Total Battery	Percent of Teacher Turnover	Percent of Student Turnover	Principal Tenure[b]
Pilot Schools	2P	583	28.6	3	25.3	52.6	11	17	4
	7P	493	71.8	3	24.7	55.8	31	11	8
Nonpilot Schools	1NP	642	1.4	1	24.7	65.4	7	14	1
	9NP	365	75.9	4	22.8	38.4	11	13	4
District Mean		616	22		24.3	58.0	14	17	4.7

[a] Based on school district quartile range determined by percentage of free and reduced-price lunches served

[b] Number of years principal had been at the school

the pilot and nonpilot group. The differences for the pupil-teacher ratio and student turnover variables were not extreme, nor were they greatly different from the district means. There were some differences, however, in relation to the pupil population, percent of minority students, socio-economic status, CTBS mean total battery, teacher turnover, and length of time the principal had been at the school. The greatest differences were in the nonpilot schools for the population, percentage of minority students, socio-economic status quartile, and CTBS mean total battery. Additionally, there was a wide difference in the teacher turnover rate for schools 1NP and 7P.

In regard to the personal variables for implementation team members in the low concern schools, there were slight differences in the percentage of males and females with females outnumbering males by a wide margin (see Table 8). Approximately one half of the low concern implementers had masters degrees. The range of different appointments was between one and three. There was only a slight difference in the mean number of years of involvement with computers. Most implementers indicated they had received formal computer training, and most of them rated themselves as an intermediate, novice, or nonuser of computers. The mean age of low concern team members ranged from 28 in school 7P to 42 in school 9NP. The widest range was in the mean number of years of teaching experience which was 9 years in school 7P and 21 in school 9NP.

Table 8

Data Regarding Personal Variables for Implementation Team Members in the Two Pilot (P) and Two Nonpilot (NP) Schools in the Lowest Stages of Concern

School						Degree		
Category	Number	N[a]	Male %	Female %	Mean Age	B.A.	M.A.	Mean Years of Teaching Experience
Pilot Schools	2P	5	40	60	34	40%	60%	14
	7P	4	0	100	28	50%	50%	9
Nonpilot Schools	1NP	6	33	67	38	50%	50%	15
	9NP	3	0	100	42	33.3%	66.7%	21

[a] Refers to the number of implementation team members

Table 8 -- continued

School						Formal Computer Training		Other Innovative Involvement	
Category	Number	N[a]	Mean Years in Present School	Mean Number of Different Appointments	Mean Years of Computer Involvement	% Yes	% No	% Yes	% No
Pilot Schools	2P	5	12	2	2	60	40	40	60
	7P	4	9	1	1	75	25	25	75
Nonpilot Schools	1NP	6	5	3	2.5	67	33	50	50
	9NP	3	12	1.5	2	100	0	33.3	66.7

[a] Refers to the number of implementation team members

Table 8 -- continued

School			Self-assessment as Computer User				
Category	Number	N[a]	Nonuser	Novice	Intermediate	Old Hand	Past User
Pilot Schools	2P	5	0%	0%	75%	25%	0%
	7P	4	25%	25%	50%	0%	0%
Nonpilot Schools	1NP	6	17%	33%	33%	17%	0%
	9NP	3	33.3%	33.3%	33.3%	0%	0%

[a] Refers to the number of implementation team members

There was also a difference in the mean number of years that implementers of low concern schools had been in their present school. In the nonpilot schools, one half of the implementers were involved in other innovations, while in the pilot schools most were not involved in other innovations.

Data Relative to Conditions Viewed as Inhibiting or Expediting Innovation Implementation

Presented in Table 9 are data regarding types of conditions that were viewed by members of the implementation teams of the two pilot and two nonpilot schools that were at the highest stages of concern and the two pilot and two nonpilot schools that were at the lowest stages of concern as inhibiting or expediting the adoption of the elementary computer curriculum. The data in Table 9 relate to questions 3, 5, and 6 in the interview guide (see Appendix C). It can be seen that slightly over one half of the participants thought the materials were received in time to implement the program, that the materials were suited to the abilities of the students, and that follow-up and support assistance was available. However, only 52% of the respondents stated that the training from the district staff was adequate.

Table 9

Conditions Perceived by Implementation Team Members as Inhibiting or Expediting the Adoption of the Innovation

Response	Material Availability	Training	Material Suitability	Follow-up Support
Yes	66%	52%	72%	69%
No	21%	38%	14%	14%
Uncertain	13%	10%	14%	17%

Presented in Tables 10 through 12 are additional data gathered from interviews with the implementation team members. They are statements that were formulated by the researcher as being representative of the actual statements of the respondents.

Specifically in Table 10, data are presented regarding conditions that were perceived by implementation team members as inhibiting or expediting the implementation of the elementary computer curriculum (see Appendix C; question 1). The most frequent responses in regard to conditions that inhibited the implementation centered around the lack of adequate training and a lack of computers. A lack of software was cited by a few as hampering the process. Several other statements were included; however, they were only mentioned one or two times by implementation team members.

Presented in Table 11 are data relative to the most difficult part of the implementation as perceived by implementation team members. These data specifically relate to question 7 in the interview guide (see Appendix C). The most frequently mentioned statements were lack of time to implement, having to work around scheduled activities, lack of personnel, and having to teach one student at a time. Also mentioned by at least two teams each were low level of confidence, lack of computers, scheduling of the computer, and having someone to answer questions or respond to problems when they occurred. Several other statements that were mentioned only one time are also presented in Table 11.

Data in regard to question 8 in the interview guide (Appendix C) are presented in Table 12. Implementation team members offered several suggestions relative to implementing future innovations. Special computer teachers, more computers, more demonstrations by experts, and the need for a management system to track student progress were the most frequently mentioned responses. Several other suggestions were made by only one team and are also included in Table 12.

Table 10

Responses of Participants Relative to Conditions That Inhibited or Expedited the Implementation of the Elementary Computer Curriculum

Response	Frequency of Response
Inhibited	
Lack of adequate training	11
Lack of computers	10
Lack of software	4
Free time in view of other duties	4
Time to use computer in the classroom	2
There was no teacher nor aide available	2
Confidence in teaching the curriculum was low	1
Students could not concentrate on other work with computers in use in the classroom	1
Moving of computer from room to room was a hindrance	1
Confidence of users hindered the process	1
Needed a computer laboratory	1
Assistance from the district level was inadequate	1
Lack of personnel to administer the program	1
Lack of communication among committee members	1
Computer was stolen	1
New reading series took too much time	1
Reluctant teacher involvement in new technology hindered the process	1
A need for money and space	1
Expedited	
Curriculum materials helpful in teaching	4
The hands-on activities by students	2
Took course at county office at the basic level	1
Scholastic computer books helped	1
Software was helpful	1
Volunteers were helpful	1
Input from faculty	1
College credit courses	1
High level of motivation on the part of students was helpful	1
Community, faculty, and school board interest was helpful	1

Table 11

Data Relative to Participants' Perception of the Most Difficult Part of Implementation

Response	Frequency of Response
Time to implement	7
Working around scheduled activities	5
Lack of personnel	5
To teach only one student at a time	4
Lack of confidence	2
Lack of computers	2
Scheduling of present computer	2
Answer to problems when they occurred	2
Bringing computer to the classroom	1
Concentration on other work was hindered when one student was working on computer	1
Working with kindergarteners	1
Trying to involve teachers	1
Trying to accommodate many ideas, interruptions, personalities, and talents	1
Cost	1
Space limitation	1
Getting started	1
Using special purpose keys hard for kindergarten	1
Hard to put into curriculum	1
Determining a beginning point	1
Need a computer laboratory	1
Efficient use of computers	1

Table 12

Data Relative to Suggestions of Participants Regarding Implementing Future Innovations

Response	Frequency of Response
Special computer teacher is needed	6
More computers	4
One computer in each room	4
More demonstration by experts	2
All teachers involved in lessons two to four hours	2
Develop a computer management system	2
Hard to be media specialist and work with computer also	1
Could be incorporated into library skills	1
Should be taught by librarian or compensatory education teacher	1
Allow learning disabilities and gifted program to have a permanent computer	1
Computer laboratory open before and after school	1
Computer laboratory as a learning tool to promote academics in addition to computer literacy	1
Computer laboratory for each school	1
Provide each room with a large keyboard	1
Typewriters in grades 4 through 6	1
Hands-on activities	1
Personal review of manual instructions	1
District level to specify guidelines	1
Identify target groups to be served	1
A section for computer skills on the report card	1
Someone to demonstrate using teachers as students	1
More time to implement	1
More materials	1
Uniformity across the district	1
Knowledgeable people to aid implementation	1

CHAPTER FOUR

SUMMARY, CONCLUSIONS, AND DISCUSSION

Summary

The focus of the study was on the stages of concern about the implementation of an innovation in a large urban school system as perceived by implementers. The innovation under investigation was the elementary computer curriculum. Specifically, answers to the following questions were sought:

1. To what extent were there commonalities or differences in the stages of concern about the elementary computer curriculum innovation among members of the implementation teams in selected schools in the first year of adoption (nonpilot schools) and among members of the implementation teams in the schools in the second year of adoption (pilot schools)?
2. To what extent were there differences between the pilot and nonpilot schools' implementation teams in regard to their stages of concern about the elementary computer curriculum innovation?
3. To what extent were there differences between the two pilot schools that were in the highest stage of concern and the two nonpilot schools that were in the highest stage of concern (based on responses of members of the

implementation teams) in regard to selected personal variables of members of the implementation teams and school-related variables?

4. To what extent were there differences between the two nonpilot schools that were in the lowest stage of concern (based on responses of members of the implementation teams) and the two pilot schools that were in the lowest stage of concern in regard to selected personal variables of members of the implementation teams and school-related variables?

5. For the two pilot and two nonpilot schools that were in the highest stage of concern and the two pilot and two nonpilot schools that were in the lowest stage of concern, what did members of the implementation teams perceive to be conditions that tended to expedite or inhibit the adoption of the elementary computer curriculum innovation?

The study was confined to implementation teams in 18 selected elementary schools in the Orange County, Florida, Public School System. From the 68 elementary schools in the system, members of the implementation teams in 9 schools that were pilot schools for the elementary computer curriculum in 1983-84 and members of implementation teams from 9 schools randomly selected from the 59 schools which were not involved in the pilot project participated in the study. The total number of participants was 107. The number of implementation team members ranged from three to eight. The fact that this range was evident did not seem to impact the findings of the study.

For questions 1 and 2 which related to the stages of concern about the implementation of the elementary computer curriculum, the Stages of Concern Questionnaire (SoCQ) was used to measure the stages of concern. For questions 3 and 4 which focused on the differences between pilot and nonpilot schools in regard to personal and school-related variables, a researcher-prepared questionnaire and data from school system records were used. For question 5, which dealt with the conditions that were perceived by members of implementation teams to have inhibited or expedited the adoption of the elementary computer curriculum, a researcher-prepared interview guide was used.

Only descriptive statistics were used in the study. That is, there was no attempt to use inferential statistics for the purpose of determining significant differences at a given probability level. The reason for this was that any differences found were real and true differences for those involved and the schools were not representative in the sense of a sample from a population to which generalizations without qualifications could be drawn. To answer question 1, a descriptive profile of school implementation team members on the SoCQ was developed to show the variation among members of implementation teams for both pilot and nonpilot schools. To answer question 2, the school scores on the SoCQ for pilot schools were compared with the school scores of nonpilot schools. To answer questions 3 and 4, a narrative and tabular report was developed to show the responses of implementation team members to a researcher-prepared questionnaire. To answer question 5, a narrative and tabular report of the responses of implementation team members to an interview was developed.

In regard to the commonalities or differences in the stages of concern about the elementary computer curriculum among implementation team members in pilot and nonpilot schools (question 1), the major findings were as follows:

1. The majority of implementation team members had their most intense concerns at the informational stage of concern.
2. The majority of implementation team members had their second most intense concerns at the personal stage of concern.
3. The majority of implementation team members had their least intense concerns at the consequence and refocusing stages.
4. The highest median stages of concern were the informational and personal stages of concern.
5. The lowest median stages of concern were the consequence and refocusing stages of concern.
6. There was an extremely wide range of intensity of

concerns among individual members of the implementation teams.

Relative to the differences between pilot and nonpilot implementation teams in regard to their stages of concern (question 2), the major findings were as follows:

1. Both pilot and nonpilot implementation teams had their most intense and second most intense concerns at the informational and personal stages.
2. Nonpilot implementation teams had more intense concerns at the higher stages of concern than pilot implementation teams. Only one pilot implementation team had its most intense concern about the informational stage, while four nonpilot implementation teams had their most intense concerns about the informational stage of concern.

Relative to the differences between the two pilot and two nonpilot schools that were in the highest stage of concern, and the differences between the two pilot and nonpilot schools that were in the lowest stage of concern in regard to selected personal variables of implementation team members and school-related variables (questions 3 and 4), there were no extreme differences that would indicate that any variable influenced the concerns expressed by implementation teams. Although there were some differences and some commonalities, no patterns nor trends could be established for either the commonalities or differences. This finding was consistent with research previously done by Hall, et al. (1979). In their research, they found that "there have been no outstanding relationships between the standard demographic variables and concerns data" (p. 52).

In regard to conditions that were viewed by members of implementation teams, pilot and nonpilot, in the highest stage of concern, and pilot and nonpilot implementation teams in the lowest stage of concern, that tended to inhibit or expedite the adoption of the elementary computer curriculum, the following major findings emerged:

1. Members of implementation teams indicated that the lack of adequate training was a major obstacle that inhibited the adoption of the innovation.

2. Members of implementation teams stated that the lack of an adequate number of computers was an obstacle to implementing the innovation.

3. Time to implement the elementary computer curriculum was cited as being the most difficult part of the implementation process. Scheduling and lack of personnel were mentioned as difficult aspects of the implementation.

4. The need for a special computer teacher and more computers were given as suggestions for future innovative efforts.

Conclusions

In regard to the major problem which gave direction to the investigation (an analysis of the stages of concern about the adoption of the elementary computer curriculum), the findings seem to warrant the following major conclusions:

1. Since most of the members of implementation teams had their highest or second highest concerns at the informational and personal stages of concern, it seemed that implementers wanted more information about the innovation, had a general awareness of the innovation, and were interested in substantive aspects of the innovation. Additionally, implementers seemed to have some uncertainty about the roles played by individuals, and also about the demands that might be placed on the individual.

2. Members of implementation teams of nonpilot schools had their most intense concerns at higher stages of concern than pilot schools; therefore, certain conditions were evident in regard to pilot schools that were not evident in regard to nonpilot schools.

3. No personal or school-related variables seemed to have any profound bearing on the concerns of implementers of the elementary computer curriculum.

4. There were certain conditions (i.e., training, lack of computers, insufficient time to implement the curriculum, scheduling, and lack of personnel) frequently mentioned by implementers that seemed to generate concerns about the adoption and implementation of the elementary computer curriculum.

Discussion

In the study there was an effort to answer some questions which existed about the concerns relative to the adoption of an innovation among and between pilot and nonpilot schools. Additionally, questions about personal variables of members of the implementation teams and school-related variables as well as conditions which might have impacted the adoption of innovations were also addressed. The results are presented in three ways. First, there is a discussion about the results of the study and possible causes. Second, there is a discussion of the practical application of the findings. Third, there is a discussion about the implications for further study.

Results of the Study in Relation to Possible Causes

One of the findings of the study was that most implementation teams were at the first or second stages of concern. Since the innovation had only been in place for one year in pilot schools and for only a few months in nonpilot schools, it was apparent to the researcher that more time was necessary to resolve lower stage concerns before participants moved on to the higher stage concerns.

In regard to the findings that members of implementation teams of nonpilot schools were at the higher stages of concern than pilot school implementation team members seemed to be because of the limited resources and lack of personnel support by the district-level implementers.

There were only two persons who were available to train implementation team members in pilot schools. It was their first attempt at a training effort outside of a computer laboratory environment. Additionally, they were responsible for training approximately 1,500 teachers in basic computer literacy, while also trying to provide training and support for the elementary computer curriculum innovation. However, when nonpilot team members were trained, the trainers implemented many different strategies and altered their techniques. The staff was also increased in an effort to provide more follow-up support.

In regard to the finding that the personal variables of members of implementation teams and school-related variables were not related to the stages of concern of implementation team members, this finding substantiates previous findings of Hall, et al. (1979). The only variable that was close to being related was that of principal tenure in a particular school. The relationship was accounted for in that most of the principals in the study had been at the school a very short time.

Another question that gave direction to the study was related to conditions that impacted the adoption of the innovation. It seemed clear to the researcher that if a good training model had been followed, adequate training personnel had been made available, more computers had been available, and some ideas had been offered about how to allocate time for the innovation in the curriculum, the adoption and implementation process would have gone more smoothly. It seemed likely that if these conditions were met, pilot school implementation team members would have had concerns at higher stages than what was found.

Practical Applications of the Findings

There are several possible applications of the findings. They are presented as follows:

1. Develop ad hoc training teams to train large numbers of teachers, then reduce the number of members of the teams as teachers become more proficient. Maintain only a few trainers for follow-up support.
2. Administer the Stages of Concern Questionnaire before training begins, and at several points during the adoption process.
3. Develop interventions and strategies to address concerns identified by the SoCQ.
4. Use an interview guide and hold discussions with implementers to gather data about conditions which are impacting the successful adoption of the innovation.
5. Use the findings to help make budgetary decisions regarding training needs, equipment, staff, materials, and supplies.

Implications for Further Research

Several recommendations for future study can be made. There is a need for studies that cover a longer period of time in regard to the adoption process than was the case in this study. A longer study would allow time for the researcher to determine if concerns abate after interventions are employed. Other studies could be done using both the stages of concern and levels of use data to assist staff developers in designing training activities.

Studies could be done of a variety of different educational innovations. This would provide a broader base of knowledge for school systems as innovative efforts are undertaken.

Since school systems are constantly changing, and innovative activities are evident on a frequent basis, there will continue to be a demand for more information about ways to implement innovations. Further research studies are vital to educators who are involved in the change process.

APPENDIX A

STAGES OF CONCERN QUESTIONNAIRE

0	1	3 4 5	6 7
Irrelevant	Not true of of me now	Somewhat true of me now	Very true of me now

1. I am concerned about students' attitudes toward this innovation. 0 1 2 3 4 5 6 7

2. I now know of some other approaches that might work better. 0 1 2 3 4 5 6 7

3. I don't even know what the innovation is. 0 1 2 3 4 5 6 7

4. I am concerned about not having enough time to organize myself each day. 0 1 2 3 4 5 6 7

5. I would like to help other faculty in their use of the innovation. 0 1 2 3 4 5 6 7

7. I would like to know the effect of reorganization on my professional status. 0 1 2 3 4 5 6 7

8. I am concerned about conflict between my interests and my responsibilities. 0 1 2 3 4 5 6 7

9. I am concerned about revising my use of the innovation. 0 1 2 3 4 5 6 7

10. I would like to develop working relationships with both our faculty and outside faculty using this innovation. 0 1 2 3 4 5 6 7

11. I am concerned about how the innovation affects students. 0 1 2 3 4 5 6 7

12. I am not concerned about this innovation. 0 1 2 3 4 5 6 7

13. I would like to know who will make the decisions in the new system. 0 1 2 3 4 5 6 7

14. I would like to discuss the possibility of using the innovation. 0 1 2 3 4 5 6 7

APPENDIX A (continued)

0	1	3	4	5	6	7
Irrelevant	Not true of of me now		Somewhat true of me now		Very true of me now	

15. I would like to know what resources are available if we decide to adopt this innovation. 0 1 2 3 4 5 6 7

16. I am concerned about my inability to manage all the innovation requires. 0 1 2 3 4 5 6 7

17. I would like to know how my teaching or administration is supposed to change. 0 1 2 3 4 5 6 7

18. I would like to familiarize other departments or persons with the progress of this new approach. 0 1 2 3 4 5 6 7

19. I am concerned about evaluating my impact on students. 0 1 2 3 4 5 6 7

20. I would like to revise the innovation's instructional approach. 0 1 2 3 4 5 6 7

21. I am completely occupied with other things. 0 1 2 3 4 5 6 7

22. I would like to modify our use of the innovation based on the experiences of our students. 0 1 2 3 4 5 6 7

23. Although I don't know about this innovation, I am concerned about things in the area. 0 1 2 3 4 5 6 7

24. I would like to excite my students about their part in this approach. 0 1 2 3 4 5 6 7

25. I am concerned about time spent working with nonacademic problems related to this innovation. 0 1 2 3 4 5 6 7

26. I would like to know what the use of the innovation will require in the immediate future. 0 1 2 3 4 5 6 7

27. I would like to coordinate my efforts with others to maximize the innovation's effects. 0 1 2 3 4 5 6 7

APPENDIX A (continued)

0	1	3	4	5	6	7
Irrelevant	Not true of me now		Somewhat true of me now		Very true of me now	

28.	I would like to have more information on time and energy commitments required by this innovation.	0 1 2 3 4 5 6 7
29.	I would like to know what other faculty are doing in this area.	0 1 2 3 4 5 6 7
30.	At this time, I am not interested in learning about this innovation.	0 1 2 3 4 5 6 7
31.	I would like to determine how to supplement, enhance, or replace the innovation.	0 1 2 3 4 5 6 7
32.	I would like to use feedback from students to change the program.	0 1 2 3 4 5 6 7
33.	I would like to know how my role will change when I am using the innovation.	0 1 2 3 4 5 6 7
34.	Coordination of tasks and people is taking too much of my time.	0 1 2 3 4 5 6 7
35.	I would like to know how this innovation is better than what we have now.	0 1 2 3 4 5 6 7

APPENDIX B

PERSONAL INFORMATION QUESTIONNAIRE

PLEASE COMPLETE THE FOLLOWING:

1. Is your job:

   teaching _____ administration _____

2. Female ___ Male ___

3. Age: 20-29 ___ 30-39 ___ 40-49 ___

   50-59 ___ 60-69 ___

4. Highest degree earned:

   Associate ___ Bachelor ___ Masters ___

   Educational Specialist ___ Doctorate ___

5. Year highest degree earned: __________

6. Total years teaching (including 1984-85): __________

7. Number of years at present school: __________

8. In how many schools in Orange County have you held full time appointments?

   one ___ two ___ three ___

   four ___ five or more ___

9. How long have you been involved in the elementary computer curriculum, not counting this year?

   never ___ 1 year ___ 2 years ___

   3 years ___ 4 years ___ 5 years or more ___

10. In your use of the elementary computer curriculum, do you consider yourself to be a

    nonuser ___ novice ___ intermediate ___

    old hand ___ past user ___

11. Have you recieved formal training in using the

    elementary computer curriculum? yes ___ no ___

12. Are you currently in the first or second year of use of some major innovation or program other than the elementary computer curriculum? yes ___ no ___

    If yes, please describe briefly.

APPENDIX C

INTERVIEW GUIDE

1. In your opinion, what things helped or hindered the implementation of the elementary computer curriculum?

2. Did you receive materials from the district office in plenty of time to start the program?

3. Did you receive staff development training from the district office staff? If so, was it adequate?

4. Were you involved in any other new programs or activities that impacted the implementation of the elementary computer curriculum? If so, what were they?

APPENDIX C (continued)

5. Were the materials well suited to the students in terms of readability, attractiveness, and interest?

6. Was there adequate support (someone to answer questions, etc.) for you to adequately implement the elementary computer curriculum?

7. What was the most difficult part of implementation?

8. What suggestions do you have for the school system as it relates to future innovative efforts?

9. Are there any other conditions that you think helped or hindered the implementation of the elementary computer curriculum?

APPENDIX D

STAGES OF CONCERN STATEMENTS GROUPED BY STAGE

Item Number	Statement
	STAGE 0
3	I don't even know what the innovation is.
12	I am not concerned about this innovation.
21	I am completely occupied with other things.
23	Although I don't know about this innovation, I am concerned about things in the area.
30	At this time, I am not interested in learning about this innovation.
	STAGE 1
6	I have a very limited knowledge about the innovation.
14	I would like to discuss the possibility of using the innovation.
15	I would like to know what resources are available if we decide to adopt this innovation.
26	I would like to know what the use of the innovation will require in the immediate future.
35	I would like to know how this innovation is better than what we have now.
	STAGE 2
7	I would like to know the effect of reorganization on my professional status.
13	I would like to know who will make the decisions in the new system.
17	I would like to know how my teaching or administration is supposed to change.
28	I would like to have more information on time and energy commitments required by this innovation.
33	I would like to know how my role will change when I am using the innovation.
	STAGE 3
4	I am concerned about not having enough time to organize myself each day.
8	I am concerned about conflict between my interests and my responsibilities.
16	I am concerned about my inability to manage all the innovation requires.
25	I am concerned about time spent working with non-academic problems related to this innovation.
34	Coordination of tasks and people is taking too much of my time.

APPENDIX D (continued)

Item Number	Statement
	STAGE 4
1	I am concerned about students' attitudes toward this innovation.
11	I am concerned about how the innovation affects students.
19	I am concerned about evaluating my impact on students.
24	I would like to excite my students about their part in this approach.
32	I would like to use feedback from students to change the program.
	STAGE 5
5	I would like to help other faculty in their use of the innovation.
10	I would like to develop working relationships with both our faculty and outside faculty using this innovation.
18	I would like to familiarize other departments or persons with the progress of this new approach.
27	I would like to coordinate my effort with others to maximize the innovation's effects.
29	I would like to know what other faculty are doing in this area.
	STAGE 6
2	I now know of some other approaches that might work better.
9	I am concerned about revising my use of the innovation.
20	I would like to revise the innovation's instructional approach.
22	I would like to modify our use of the innovation based on the experiences of our students.
31	I would like to determine how to supplement, enhance, or replace the innovation.

APPENDIX E

SoC STAGES

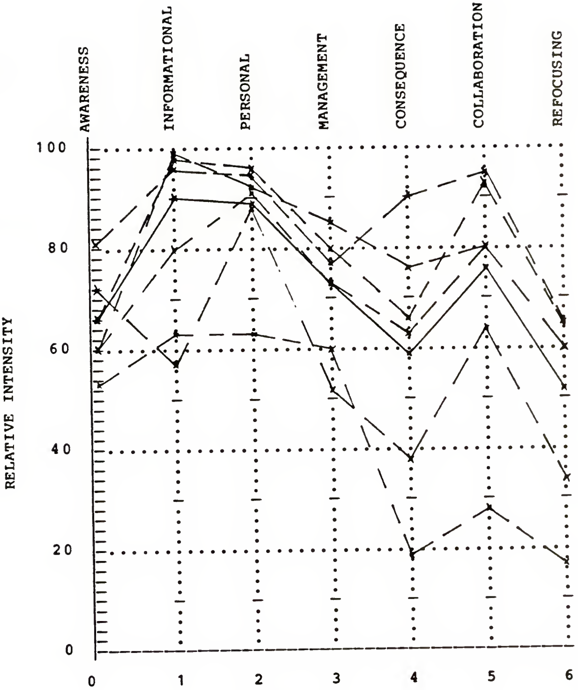

Figure 1

Stages of Concern for School 1P

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

SoC STAGES

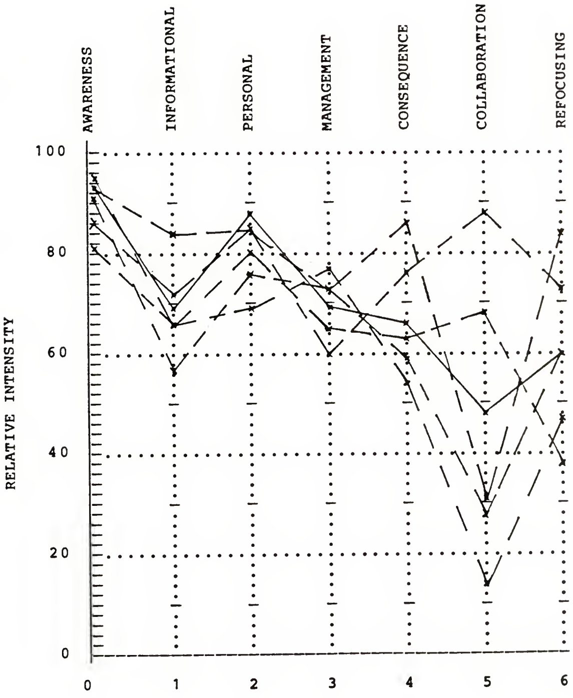

Figure 2

Stages of Concern for School 2P

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

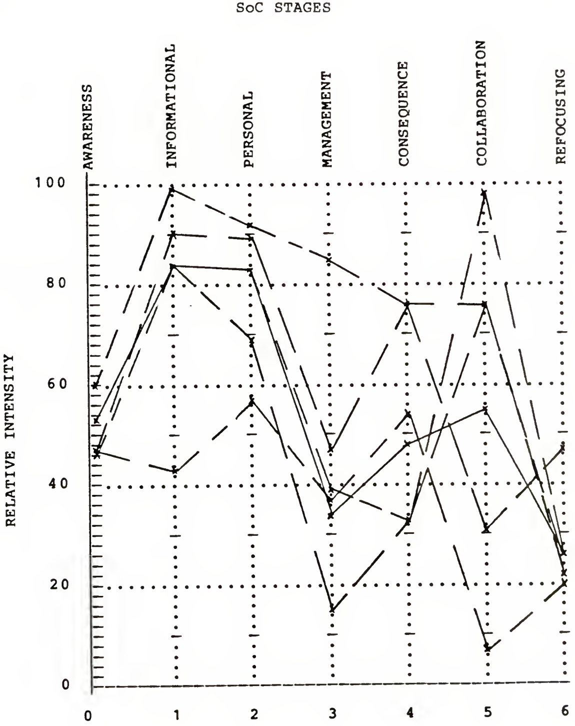

Figure 3

Stages of Concern for School 3P

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

SoC STAGES

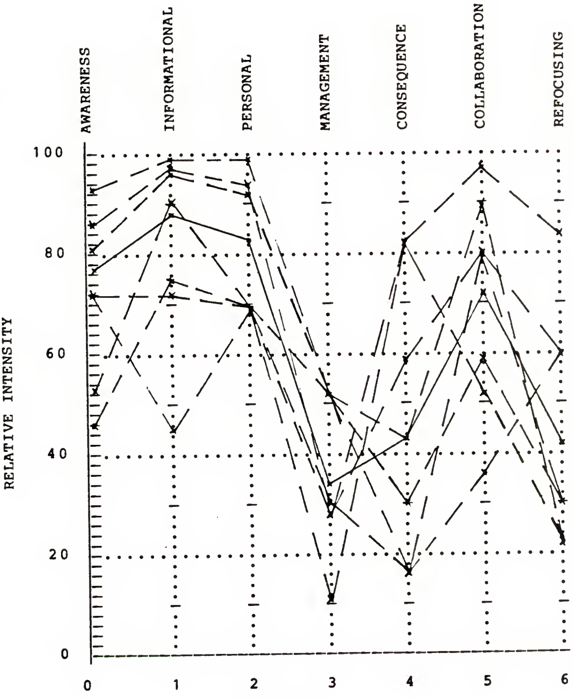

Figure 4

Stages of Concern for School 4P

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

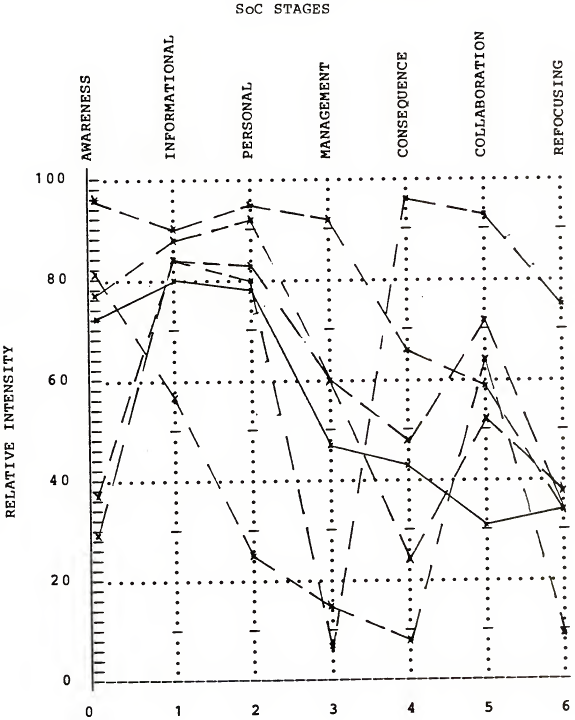

Figure 5

Stages of Concern for School 5P

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

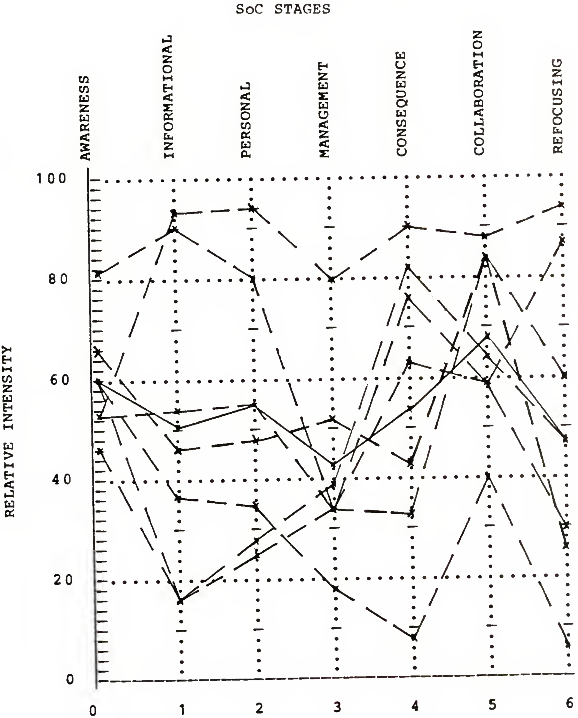

Figure 6

Stages of Concern for School 6P

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

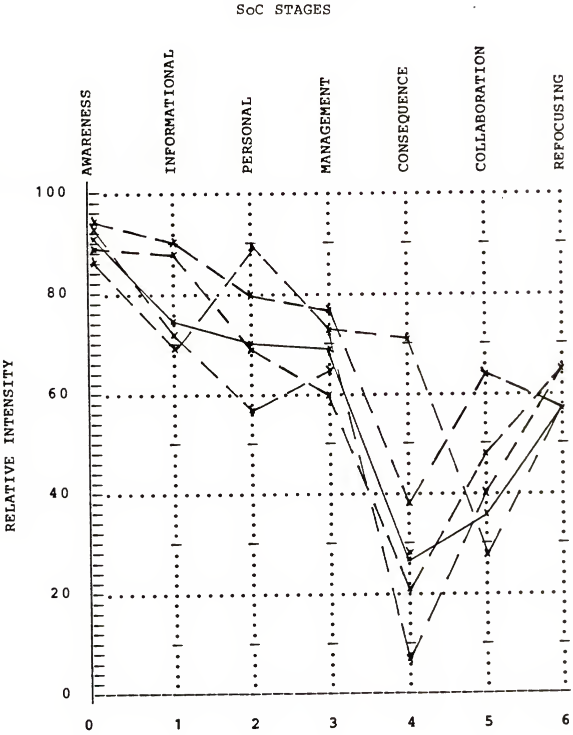

Figure 7

Stages of Concern for School 7P

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

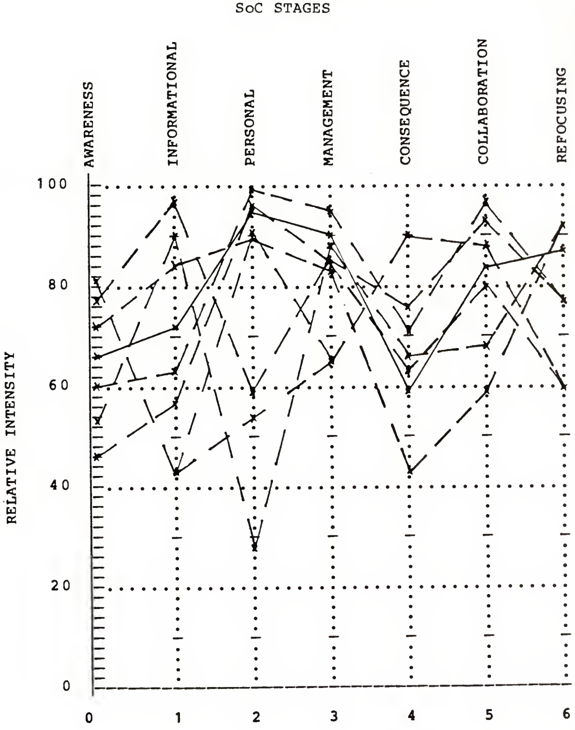

Figure 8

Stages of Concern for School 8P

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

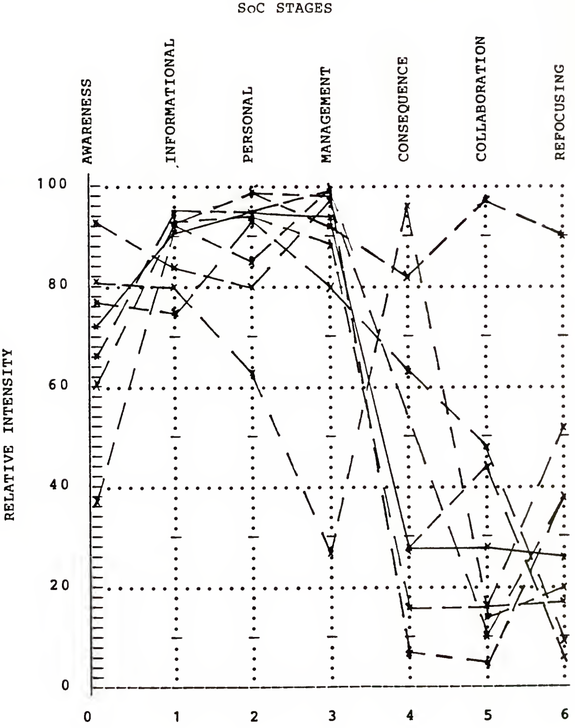

Figure 9

Stages of Concern for School 9P

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

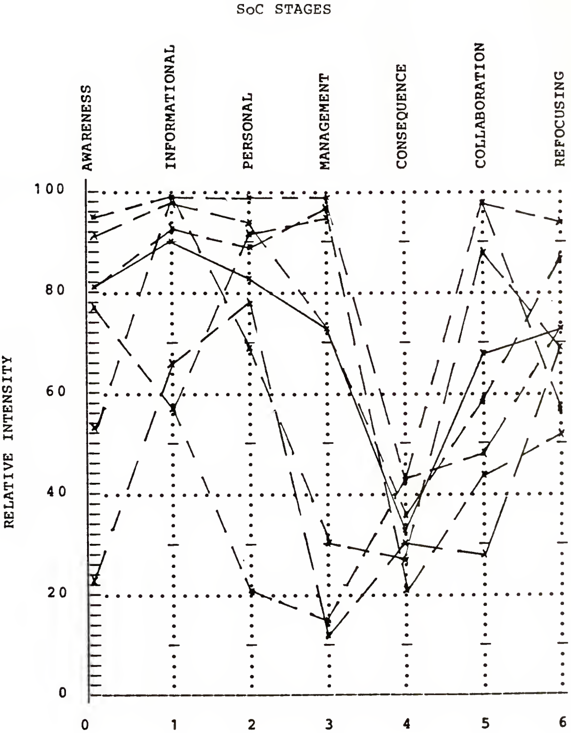

Figure 10

Stages of Concern for School 1NP

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

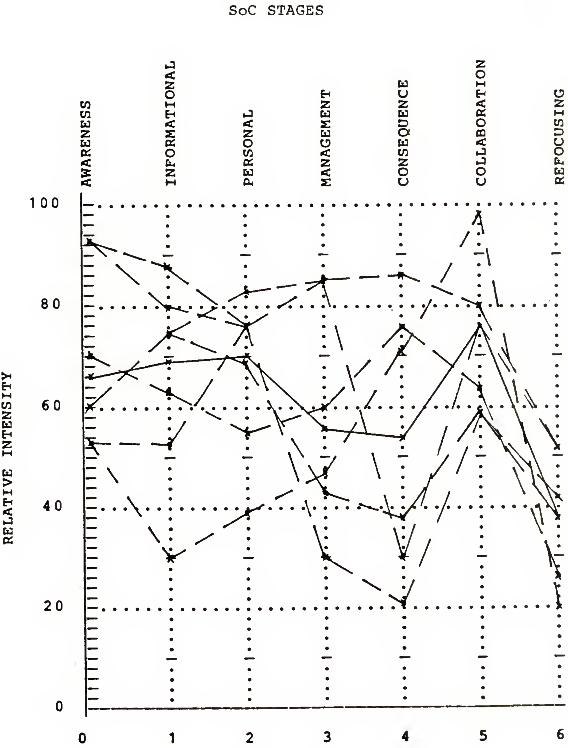

Figure 11

Stages of Concern for School 2NP

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

SoC STAGES

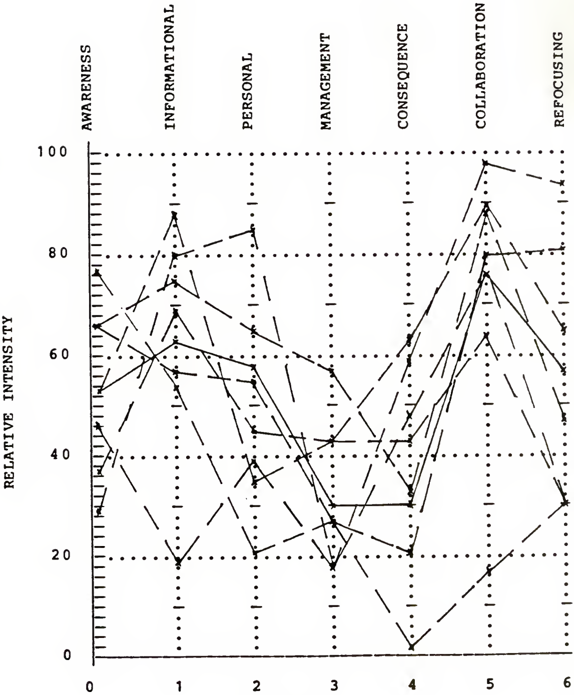

Figure 12

Stages of Concern for School 3NP

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

SoC STAGES

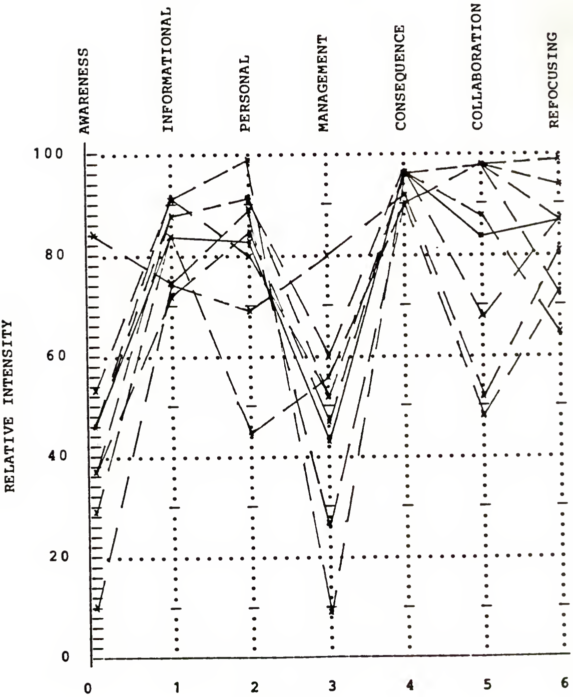

Figure 13

Stages of Concern for School 4NP

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

SoC STAGES

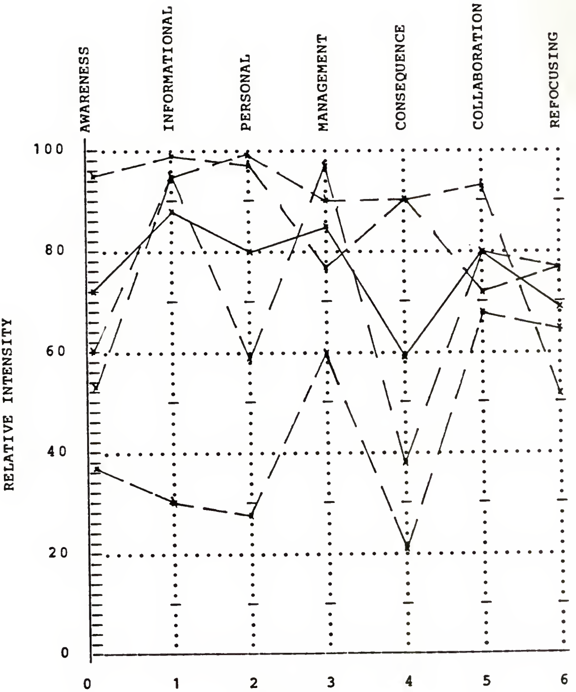

Figure 14

Stages of Concern for School 5NP

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

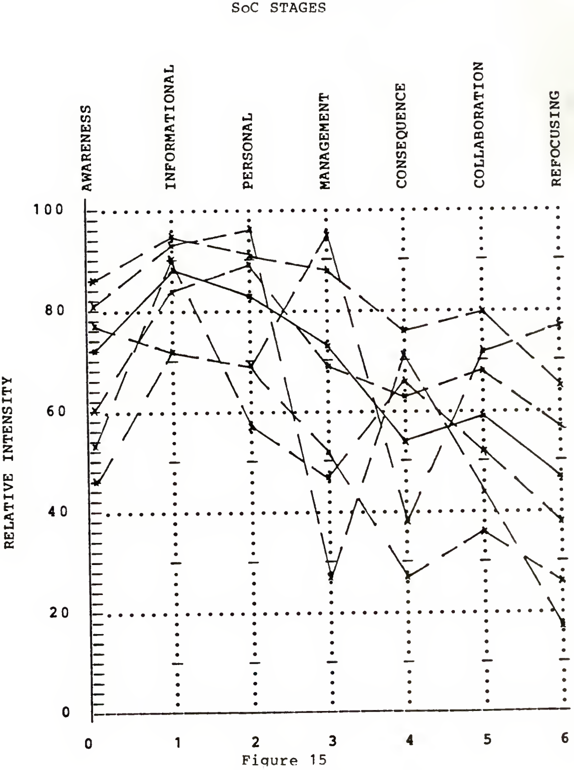

Figure 15

Stages of Concern for School 6NP

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

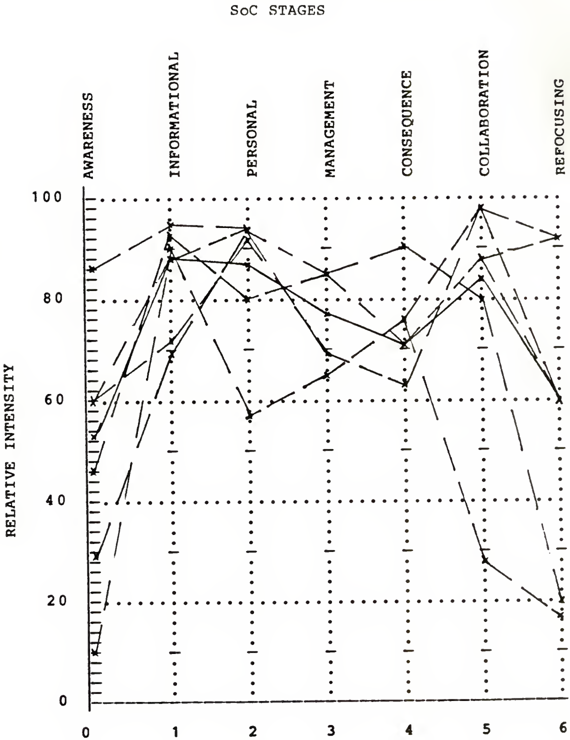

Figure 16

Stages of Concern for School 7NP

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

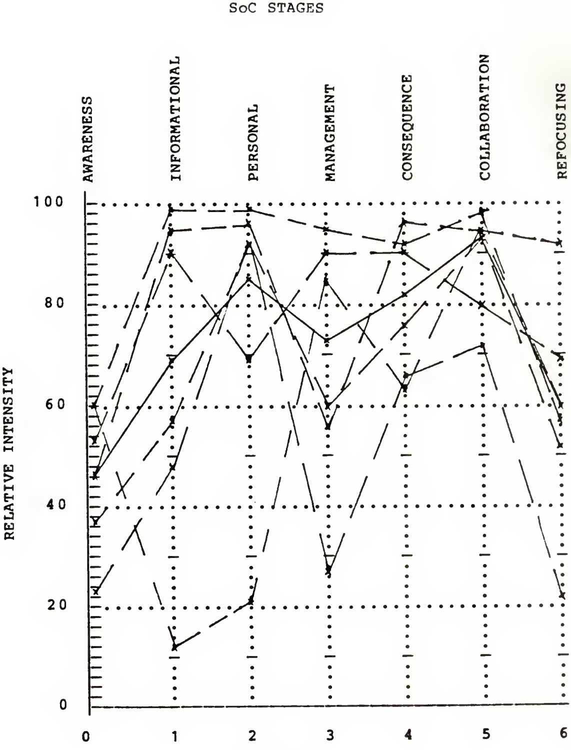

Figure 17

Stages of Concern for School 8NP

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

APPENDIX E (continued)

SoC STAGES

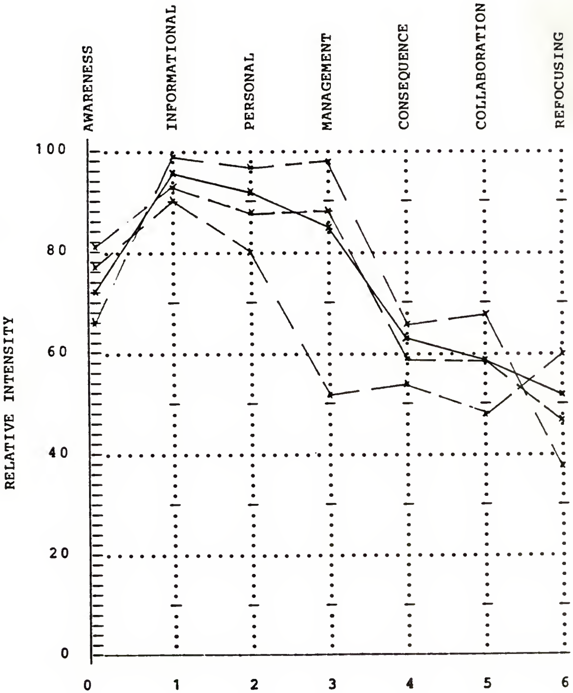

Figure 18

Stages of Concern for School 9NP

Note: Solid line indicates school scores and broken lines indicate scores of individual team members.

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BIOGRAPHICAL SKETCH

Roy Elmo Eldridge II was born in Gulfport, Mississippi, and spent most of his early childhood and teenage years in the Chattanooga, Tennessee, area. He received a Bachelor of Arts Degree in education in 1965 from William Jennings Bryan College in Dayton, Tennessee, and a Master of Arts Degree in 1969 from Rollins College, Winter Park, Florida.

From 1965 to 1970, he was an elementary classroom teacher in the public schools of Orange County, Florida. From 1970 to 1975, he worked in the adult and high school vocational programs as an administrator. In 1975, he was appointed principal of Dommerich Elementary School in Orange County. Since 1980, he has served as the Associate Superintendent for Elementary Education for the public schools of Orange County, Florida.

His professional memberships include the American Association of School Administrators, Florida Association of School Administrators, Association for Supervision and Curriculum Development, International Reading Association, Phi Delta Kappa, National Council of Teachers of Mathematics, and the National Congress of Parents and Teachers.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

Michael Y. Nunnery

Michael Y. Nunnery, Chairman
Professor of Educational Leadership

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

Ralph B Kimbrough

Ralph B. Kimbrough
Professor of Educational Leadership

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

Joseph Shea

Joseph J. Shea
Associate Professor of Instruction
and Curriculum

This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate School, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Education.

August 1985

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Dean, College of Education

Dean, Graduate School